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NUCLEAR NONPROLIFERATION POLICY

HEARING
BEFORE THE
SUBCOMMITTEE ON
ENERGY, NUCLEAR PROLIFERATION, AND
GOVERNMENT PROCESSES
OF THE
COMMITTEE ON
GOVERNMENTAL AFFAIRS
UNITED STATES SENATE
NINETY-SEVENTH CONGRESS
FIRST SESSION

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JUNE 24, 1981
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(II)

CONTENTS

Opening statements:	Page
Senator Percy.....	1
Senator Glenn.....	3
Senator Cohen.....	7
Senator Levin.....	8

WITNESSES

WEDNESDAY, JUNE 24, 1981

James L. Buckley, Under Secretary of State for Security Assistance, Science and Technology.....	10
Gerard C. Smith, principal, Consultants International Group, Inc., Washington, D.C.; Thomas C. Schelling, professor of political economy, John F. Kennedy School of Government, Harvard University, Cambridge, Mass.; and Joseph Yager, senior fellow in the Brookings Foreign Policy Studies Program, The Brookings Institution, Washington, D.C.....	29
Carl Walske, president, Atomic Industrial Forum, Bethesda, Md.; Dwight J. Porter, vice president for international affairs, Westinghouse Electric Corp., Pittsburgh, Pa.; and S. Jacob Scherr, attorney for the Natural Resources Defense Council, Washington, D.C.....	95

Alphabetical list of witnesses:

Buckley, James L.: Testimony.....	10
Porter, Dwight J.: Testimony.....	95
Schelling, Thomas C.: Testimony.....	29
Prepared statement.....	58
Scherr, S. Jacob: Testimony.....	95
Prepared statement.....	111
Smith, Gerard C.: Testimony.....	29
Prepared statement.....	48
Walske, Carl: Testimony.....	95
Prepared statement.....	102
Yager, Joseph: Testimony.....	29
Prepared statement.....	87

Additional material submitted for the record:

Letter to the President from Senator Glenn, with attachments, June 18, 1981.....	5
Article entitled "Nuclear Safeguards or Sham?" from the Washington Post, June 16, 1981.....	8
A report by Charles N. Van Doren for the Arms Control Association entitled "Iraq, Israel and the Middle East Proliferation Problem," June 25, 1981.....	123
Statement by A. De Volpi, Hinsdale, Ill.....	176

NUCLEAR NONPROLIFERATION POLICY

WEDNESDAY, JUNE 24, 1981

U.S. SENATE,
SUBCOMMITTEE ON ENERGY, NUCLEAR
PROLIFERATION, AND GOVERNMENT PROCESSES,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
Washington, D.C.

The subcommittee met at 9:30 a.m., in room 3302, Dirksen Senate Office Building, Hon. Charles Percy (chairman of the subcommittee) presiding.

Present: Senators Percy, Cohen, Glenn, and Levin.

Also present: Senator Pressler.

OPENING STATEMENT OF SENATOR PERCY

Senator PERCY. Good morning, Mr. Secretary. We are delighted to have you with us here today.

This hearing has been called for the purpose of reviewing the nonproliferation policies of the United States and, Secretary Buckley, we certainly welcome you. I can recall David Lilienthal sitting in that very seat as chairman of the first Atomic Energy Commission saying, "I am glad I am as old as I am." I asked him why. He said, "I wouldn't want to be the age of my children and grandchildren. The world is too dangerous for that." Certainly the Israeli June 7 raid on Iraq's nuclear reactor demonstrated the urgency of dealing with nuclear proliferation in a way that would be better conceived than that particular way. That is not a way we could recommend to the world to deal with nonproliferation.

Yet I hope the raid will not dominate our discussion today. I would rather see it serve as a stimulus for a broader consideration of nonproliferation policy in the 1980's. The issues surrounding the raid are being closely examined in an ongoing series of hearings in the Foreign Relations Committee.

Some lessons, however, are already clear.

First, all countries should be aware of the destabilizing effect of the proliferation of real or potential capability for nuclear weapons production.

Second, we must encourage all nations to strengthen the international nuclear consensus by signing the Nuclear Non-Proliferation Treaty, which already has 113 signatories and places all peaceful nuclear facilities under International Atomic Energy Agency safeguards.

Third, the United States must also maintain and increase its support for the International Atomic Energy Agency and its safeguards program. In the same way that we, in these days of budget cuts, must increase our defense budget for national security reasons,

we must also increase our support for the IAEA for global security reasons. The spread of nuclear weapons could complicate and undermine even the most ambitious national defense program.

Nor can we separate nuclear proliferation policy from the need to reduce our global dependence on expensive, vulnerable, and depletable oil supplies. The main peaceful purpose of nuclear technology is energy production, so the more we can develop alternative sources of energy, the less will be the threat of global proliferation.

The United States, and especially my State of Illinois, have vast coal supplies available for export. Conservation and renewable energy technologies can play a much larger role than they have up to now, especially in the developing world. By helping these nations find more of their own oil, improve their management of traditional energy sources like fuelwood, and build energy efficiency into their industries from the start, we can encourage them to move away from imported oil without adding to the risk of nuclear weapons proliferation.

Of course, I expect that nuclear power will continue to play a major role in helping the world meet its energy needs through at least the end of this century. Our recognition of this fact requires us to pursue a realistic, results-oriented nonproliferation policy. We need to work closely with our nuclear supplier allies to assure that full-scope safeguards are applied to all nuclear exports. We must tighten up on exports of so-called "gray area" exports—ventilators, tubing, and the like—which can be used to construct sensitive nuclear facilities in secret.

While I expect that our allies will someday discover that the use of plutonium fuel is uneconomic, I hope that, in the meantime we can work with them on a more cooperative policy aimed at the real proliferation risks in the world today.

I would also like to see the United States start pursuing a more predictable nonproliferation policy and export licensing process. While we do not want the world to look at us as an easy source of nuclear technology, we must make clear that—once we do provide the technology—we will be a reliable supplier of nuclear fuel.

The danger of an inconsistent, unreliable, or excessively restrictive policy is that it would diminish American influence in nuclear matters while moving the world toward independent nuclear programs with proportionately larger risks of weapons proliferation.

As we do this, we must make sure we do not unnecessarily handicap the United States nuclear industry in its competition overseas. Yet our nuclear industry must realize that, in certain circumstances, we may have to compromise their commercial leverage to maintain our political leverage over nuclear programs throughout the world. I trust that this administration can strike the fine balance necessary between these two objectives.

Three years ago I coauthored, along with my colleague Senator Glenn, the Nuclear Non-Proliferation Act. The act was intended to tighten American control over nuclear exports and to streamline the export licensing process. The goals of the Nuclear Non-Proliferation Act are even more important today than they were then.

As chairman of the subcommittee with continuing oversight responsibility, I will work to assure that the act fulfills these goals. However, I do have an open mind about whether we need changes in the act which can improve its ability to reduce the risk of weapons

proliferation without imposing unnecessary burdens on the U.S. nuclear industry.

This morning the subcommittee will hear testimony from Under Secretary of State James Buckley on the broad outlines of the administration's nonproliferation policy. We are pleased to have a well-respected colleague in this very important post. It will certainly be a joy to work with him and to realize he can walk in our shoes as we share the responsibility of trying to define policy in statute that can be supported enthusiastically by the administration and will be backed and supported by us.

We will then hear from a panel of expert witnesses, including Ambassador Gerard Smith, Thomas Schelling of Harvard University, and Joseph Yager of the Brookings Institution. They will be followed by Carl Walske, president of the Atomic Industrial Forum, Jacob Scherr of the Natural Resources Defense Council, and Ambassador Dwight Porter of the Westinghouse Corp.

Senator Glenn?

OPENING STATEMENT OF SENATOR GLENN

Senator GLENN. Thank you very much, Mr. Chairman.

I join in welcoming Secretary Buckley to our hearing.

If I have more than about a one-page opening remark, I usually enclose it for the record or submit it for the record, but this morning, and because of the importance of this, I would like to take just a few minutes to make a slightly longer statement.

Senator PERCY. I have told Secretary Buckley ahead of time one of the purposes will be for updating how we feel.

I think it is important we not only do it privately, but publicly, and often as well.

Senator GLENN. Mr. Chairman, it seems as if every year the world takes a step closer toward nuclear disaster. For years the American public and that of other countries of the world were lulled to sleep by the notion that there was a clear, clean cleavage between nuclear technology for peaceful purposes and nuclear technology for weapons. The public was told that there was no need to be concerned about international transfers of nuclear equipment, materials, and technology because they would be protected by safeguards, and in many cases because the recipient country had provided assurances that it would not make nuclear weapons by virtue of its having signed the Non-Proliferation Treaty.

Now, I certainly am in favor of the Non-Proliferation Treaty. And I also am in favor of effective international safeguards, which neither are all that safe nor all that guarded even. But the world has been mesmerized too long with the notion that ritualized inspections and governmental assurances provide an adequate framework within which unbridled nuclear trade can flourish.

Only in recent years has the public begun to understand that safeguards are designed to detect diversion, not to prevent it—that regardless of the noble statements in the IAEA charter, and other official documents describing the theory of safeguards, the reality is that the safeguards system is falling short of its own goals.

Last year, for example, not only did the agency not carry out the number of inspections that were called for in all its agreements, but

there were literally dozens of facilities around the world that received no inspection whatsoever, including in some cases, research reactors operating on high-enriched uranium. Although the agency had approximately 120 inspectors at the end of last year, it's defined inspection objectives would have required more like 180 inspectors. The agency is doing what it can with the resources available to it but it isn't enough. In 1982 the assessed safeguards budget will only be \$25 million. That is approximately equivalent to 1/100 of a mil per kilowatt hour of nuclear generated electricity that year.

I might add, one of the first amendments I ever had on the floor of the U.S. Senate when I came here 6½ years ago was to get an extra \$1 million for IAEA because they were going to have to let some of their inspectors go unless we had that additional funding for them at that time.

But even if the safeguard system were all that it is supposed to be, it is still only a system of materials accounting—not equipment, just materials—and surveillance.

Inspectors do not have the right to inspect facilities which have not been declared as containing safeguarded materials. Inspectors can be denied the right of entry to a country by virtue of their nationality. Inspection reports are available only to the directorate and to the country being inspected. And even if a piece of intelligence information became available to the agency that some suspicious clandestine nuclear activity might be going on at a particular place, the agency does not have the right to send an inspector to verify the report.

An equally significant problem concerns the NPT itself. Under the provisions of article IV, as interpreted at least by many NPT parties, technical assistance in all aspects of nuclear technology is to be provided by the industrialized nations.

Literally this article means that any nation can obtain assistance in building a weapons program under the guise of a peaceful nuclear development program without violating any of the provisions of the NPT. Moreover, even if a nation violates the NPT or any safeguards agreement, there are no mandated international sanctions.

The rapidly increasing capability of smaller nations to make nuclear weapons, and the absence of a world consensus on effective controls over transfers of nuclear technology or on measures to deal with the misuse of that technology prompted a number of us here in the Senate including myself and the distinguished chairman of this subcommittee, to insist that the United States adopt a firm leadership position by tightening our own export policies and agreements, providing sanctions for violators of safeguards agreements, and indicating a U.S. position on the direction that a revitalized international nuclear regime should take.

The passage of the Nuclear Non-Proliferation Act of 1978 (NNPA) brought the message home to nuclear suppliers and recipients alike that in the view of the United States, the prescriptions of the past were not working, the assurances of the present were inadequate, and a new and more effective nonproliferation regime had to be constructed on the foundation of the existing one.

It is not surprising that the NNPA has been controversial. Some of its specifics can no doubt be improved upon. I am certainly willing to discuss those. But I believe that the philosophy behind the act is sound, that our task must be to find ways to induce acceptance of this

philosophy on the part of all suppliers, and that failure to do so will produce more acts of desperation, such as the Israeli raid on the Osirak Reactor in Iraq.

For the first time in history, a nation has just said, "We don't trust the NNPA, we don't trust the IAEA, NPT," and they ran their own nonproliferation policy. They took out what they viewed as an offending potential production facility.

It is, of course, quite correct that any strategy to combat nuclear proliferation must take account of the needs of other countries in the areas of national security, energy supply, national prestige, and national sovereignty.

Toward this end, we should recognize that bilateral and multilateral security arrangements are an important aspect of nonproliferation policy, that assistance in the development of both international and indigenous energy resources is also an important factor, and that economic development and the relationship of industrialized to developing countries is also of significance. But at the same time, the foundation or bedrock of any global nonproliferation effort must be an international safeguards regime with "safeguards" used in its broadest sense.

The message of the raid on the Osirak reactor is that we need to construct a sturdier safeguards structure than we now have. We can no longer pretend that all aspects of nuclear trade are acceptable by virtue of the assurances provided through the NPT, the Non-Proliferation Treaty.

We can no longer pretend that a philosophy of maximizing the sale of nuclear materials to countries whose need for them is questionable, is a credible element in an effective nonproliferation policy. It is time to renew the U.S. commitment to irradiating this danger to mankind and to put principle above commercial considerations once and for all.

The establishment of a new, worldwide nonproliferation regime cannot be done by one country alone. We have tried to take the lead in this with NNPA. We have not seen other nations falling in line as we hoped they might. It must begin with an acceptance of certain general principles by supplier and recipient countries alike.

It is singularly important to be able to slow significantly the present trend while we attempt to obtain an international consensus on the appropriate principles. For that reason, I wrote to President Reagan urging that he take immediate steps to reopen the nuclear suppliers conference to discuss specific proposals on tightening the international nonproliferation regime.

[The letter, with attachments, follows:]

U.S. SENATE,
COMMITTEE ON GOVERNMENTAL AFFAIRS,
SUBCOMMITTEE ON ENERGY, NUCLEAR PROLIFERATION, AND
GOVERNMENT PROCESSES,
Washington, D.C., June 18, 1981.

Hon. RONALD REAGAN,
The White House,
Washington, D.C.

DEAR MR. PRESIDENT: In the wake of the Israeli attack on the Osirak Reactor in Iraq, it is abundantly clear that the international nonproliferation regime and the rules of nuclear trade must be significantly strengthened. To transfer sensitive nuclear materials, equipment, and technology under present rules to politically sensitive areas such as the Middle East or to countries whose motives

may be suspect, is to invite the possibility of military actions by nations who believe their vital security interests are at stake as was so amply demonstrated in the Israeli-Iraq case.

The purpose of this letter is to urge that the United States undertake immediate initiatives—both unilaterally and in cooperation with other nations—to begin the process of strengthening the international regime against proliferation and thereby prevent a recurrence of the June 7, event. Specifically, I urge that you:

(1) Reopen the nuclear suppliers conference with a view toward establishing truly meaningful restrictions on dangerous nuclear trade and improving the international safeguards regime including sanctions for violators.

(2) Begin planning for a world nuclear energy policy conference that would among other things discuss concerns over national security and their relationship to nuclear activities, as well as possible NPT revisions to deal with those concerns.

(3) Formulate a U.S. position on the minimally acceptable restrictions on transfers of sensitive equipment, materials, or technology that the U.S. will stand behind unilaterally, and use whatever leverage is available to induce others to adopt such restrictions.

These proposals are outlined in more detail in an Appendix attached to this letter. In particular, I wish to call your attention to the proposal for an immediate moratorium on the transfer of dangerous nuclear equipment and technology to sensitive areas of the world while discussions on a new trade regime proceed.

Some of the initiatives I am proposing can be implemented immediately and others will require considerable discussion with the nuclear suppliers. There will undoubtedly be disagreements, perhaps even between us and our closest allies, but the Israeli action shows that we do not have the luxury of dealing with this issue through the passive slow development of a world consensus.

I was pleased to learn, on the basis of your recent comments, of the depth of your appreciation of the serious problem we must all face on a bipartisan basis. Accordingly, I would be pleased to discuss the proposals with you in more detail at your convenience, and I look forward to receiving your reaction to them.

Best regards.

Sincerely,

JOHN GLENN.

Attachments.

APPENDIX—OUTLINE OF PROPOSALS

I. The following are suggested points of discussion (not considered all-inclusive) from which to start considerations for multilateral actions by the Nuclear Suppliers Group:

A. Tighten Exports of Sensitive Nuclear Material, Equipment, and Technology by Obtaining Agreement to:

1. Establish an immediate world-wide moratorium on transfers of enrichment and reprocessing equipment and technology to sensitive areas, including the Middle East and South Asia, while discussions on a new regime for nuclear trade proceed;

2. Prohibit transfers of enrichment or reprocessing technology and equipment, even at the experimental level, to states having no power reactors;

3. Limit the size of all research reactors transferred, eliminate the use of HEU in such reactors, and obtain the return of spent reactor fuel to the country of origin;

4. Extend the list of sensitive nuclear equipment, including components and dual use items, whose export the suppliers now permit only under safeguards, with public recording of all sales of such items.

B. Extend and Improve International Safeguards by Obtaining Agreement to:

1. Make nuclear transfers only to nations which have accepted full-scope safeguards;

2. Impose established sanctions in the event of violation of safeguards;

3. Introduce more openness into the safeguards system through publication of inspector reports, increased use of unannounced inspections, and increased financial support for safeguards.

C. Defer Further Commercialization of Plutonium as a Fuel by Extending Uranium Resources Through:

1. Establishing a world-wide uranium resource evaluation program and a system of international cooperation on uranium prospecting;

2. Establishment of cooperative international programs on improvement of reactor efficiency.

D. Establish International Cooperative Efforts Toward Certain Fuel Cycle Activities Thereby Limiting the Number and Location of Such Facilities Through:

1. Agreement on establishment of an international cooperative fuel bank (the INFA concept);
- international spent fuel storage facilities;
2. Establishment of international spent fuel storage facilities;
3. Establishment of cooperative breeder R&D programs located in selected centers with access by scientists from other countries that pledge not to establish such facilities themselves.

II. Proposals for Unilateral Action by the United States:

A. Formulate a U.S. position on the minimally acceptable restrictions on transfers of sensitive equipment, materials, or technology that the U.S. will stand behind unilaterally, and use whatever leverage is available to induce others to adopt such restrictions.

B. Establish a policy of examining non-nuclear energy alternatives on an equal basis with nuclear energy when assistance in meeting energy needs is requested by developing countries.

Senator GLENN. If we can get agreement from just half a dozen countries on what we would or would not export, or what we would or would not place under very tight controls, we could stop the weapons potential rather dramatically.

Second, I asked that he later consider reconvening the NPT nations even though they just had their review conference, but that was prior to the Israeli raid; convene the NPT conference with a view toward trying to put more teeth into NPT than it has now. What it boils down to now is a gentleman's agreement pretty much subject to only international opinion as the only stick if there are misdeeds under NPT.

It is my belief that we are at a watershed time in dealing with this problem. I think the witnesses today will agree with me, it has been very difficult to keep public attention or world attention focused on this problem for any lengthy period of time. Maybe in the long run, the Israelis have done a favor as far as NPT goes because, at last, the world opinion is focused on this and is alert to the danger.

The culmination of our efforts over the next year or two will determine whether we go down the path of allowing nuclear trade on a business-as-usual basis as before with the attendant hope that the materials will always remain in the hands of rational persons, or whether we finally decide on a world-wide basis that nuclear equipment, materials, and technology are to be put in a separate category from other commercial activities and treat them with the appropriate special precautions and restrictions they deserve.

I think the Faustian bargain was never clearer than it is today. We will either develop the institutions to control this dangerous technology or we may be destroyed by it.

Thank you, Mr. Chairman.

Senator PERCY. Thank you, Senator Glenn, very much indeed. Senator Cohen?

OPENING STATEMENT OF SENATOR COHEN

Senator COHEN. Thank you, Mr. Chairman.

I would like to join Senator Glenn and you in welcoming the Secretary.

I would agree with Senator Glenn the Israeli raid on Iraq has emphasized the seriousness of nuclear nonproliferation. It does present one of two alternatives. Someone asked me if this would be a

precedent for every other nation to follow. That is one course the events may take. The other would be to serve as a catalyst for very serious thought and action on the part of all of the nations across this globe.

The Nuclear Nonproliferation Treaty and Act creates a framework for containing the dangerous and malicious genie of nuclear power. I think as Senator Glenn and Roger Richter have stated and written, that framework seems to be made of straw, rather than steel, and is now in danger of collapse.

Meg Greenfield in a commentary in this week's Newsweek touched the problem where she said:

Continuance of the already flourishing, dangerous trade in allegedly harmless nuclear technology and materiel between nuclear haves and have nots was a condition of getting the nonproliferation treaty accepted in the Third World. That misguided traffic should have been much more severely limited and regulated years ago. Maybe Colonel Kaddafi will make the point—with a bang—one of these days.

No. 1, I will say the very noble goal of the Non-Proliferation Treaty and Act has been undermined by the extortionist policies of the Third World, and, No. 2, by the greed of the Western nations, themselves.

I think we can take this crisis that has been generated by the Israeli raid not as a crisis necessarily, but as an opportunity to create the kind of structural framework that is not made of straw, but made of steel.

Thank you, Mr. Chairman.

Senator PERCY. Senator Levin?

OPENING STATEMENT OF SENATOR LEVIN

Senator LEVIN. Thank you, Mr. Chairman.

Let me add my welcome to Secretary Buckley.

I have a very brief statement.

The Non-Proliferation Treaty, as it is written, and as it is applied, is a toothless tiger which instead of deterring proliferation serves as a cover for some of the most aggressive, hostile, violent-prone, and threatening countries in the world as they go on their own merry nuclear way.

There are a number of holes in this treaty, and a number of pitfalls in the so-called safeguards have already been set forth in a number of the opening statements, and they are also set forth in an editorial in the Washington Post dated June 16, 1971, which, Mr. Chairman, I will ask be made a part of the record.

Senator PERCY. Without objection.

[The editorial follows:]

[From the Washington Post, June 16, 1981]

NUCLEAR SAFEGUARDS OR SHAM?

Despite all the talk in the week that has passed since Israel's raid on the Iraqi reactor, there has been little discussion of two key questions: What was Iraq really up to? And what was the International Atomic Energy Agency doing about it?

Probably no one outside Iraq knows the full answer to the first, but a great deal has been revealed by unclassified sources. Iraq has, first of all, no commercial nuclear power program. Yet it has stockpiled several hundred tons of uranium ore. Why? No one is certain. The Israelis believe its purpose was to produce

plutonium in the since destroyed reactor. Iraq has paid for training of scientists and technicians in all phases of the nuclear fuel cycle—including the most sensitive. Iraq has also purchased laboratories known as "hot cells" from Italy, which are intended for handling highly radioactive materials. At least one of these is designed for separating plutonium—the optimum weapons fuel—from spent reactor rods.

Western intelligence sources apparently have no evidence of actual bomb design or construction in Iraq. Yet taken all together, Iraqi nuclear activities leave little room for any explanation other than a weapons program. Though the administration has made no official comment on Iraqi intentions, its views can be inferred from a recent speech by Democratic Senator Alan Cranston who said, "I have been informed by more than one authoritative executive branch official that, in the absence of any associated power program, a weapons capability is clearly the option the Iraqis are pursuing." Senator Cranston's statement has not been challenged or contradicted.

Why, then, was the IAEA, the United Nations agency set up to insure against the proliferation of nuclear weapons, doing nothing about the Iraqi program? A partial answer is that Iraq has done nothing to violate its commitments under the Non-Proliferation Treaty. The treaty is written in such a way that a violation does not technically occur until nuclear material—uranium or plutonium—is diverted from its approved use. But this may occur within a few days of its insertion into a nuclear bomb. Since IAEA inspectors come around only a few times a year, the international safeguards system amounts to only an elaborate accounting procedure that relies on the good intentions of the parties being safeguarded.

The IAEA safeguards are also narrowly applied. They are focused on nuclear fuels, but not on facilities where fuel is not present. IAEA inspectors would therefore not have had access to the alleged underground weapons facility that the Israelis continue to claim Iraq had built.

A more subtle but possibly more debilitating weakness in the IAEA system derives from the agency's split personality. It has a policing function, but it also regards itself as a promoter of peaceful nuclear activities. Characteristically, the IAEA's first reaction to the raid was to criticize Israel for an action that "could do great harm to the development of nuclear energy for peaceful purposes" or, in other words, for nuclear commerce. Incredibly, the agency called on its members to give Iraq "emergency assistance" in rebuilding the damaged reactor.

In fact, Iraq's status as a party to the Non-Proliferation Treaty may have been its greatest asset in its apparent pursuit of a weapons capability. Whenever questions have been raised about the wisdom of French and Italian exports, Western governments, including the United States, have repeatedly answered them with reference to the NPT. It should not go unnoticed now that when he is questioned about his own intentions, Libya's Col. Qaddafi answers in precisely the same way.

If the Israeli raid provokes a serious reexamination of the IAEA safeguards system and the overreliance of nuclear suppliers on NPT membership as a substitute for hard-headed and, yes, even discriminatory policies based on the most reasonable estimate of nations' nuclear intentions, the raid may turn out, paradoxically, to have advanced the cause of nonproliferation.

Senator LEVIN. I agree with Senator Glenn's assessment that it is a gentleman's agreement. The trouble is it is being relied on in a world that is not full of gentlemen.

Thank you, Mr. Chairman.

Senator PERCY. Thank you very much.

At long last, Secretary Buckley, we would like to hear from you.

Once again, we are pleased to have you as Under Secretary of State for Security Assistance, Science and Technology. I hope you will be able to tell us the general direction the administration plans to take in this area, and when the President does announce his non-proliferation policy in detail, we plan to hold hearings in the Foreign Relations Committee to review it in the full context of American foreign policy.

We look forward to your testimony.

**TESTIMONY OF JAMES L. BUCKLEY, UNDER SECRETARY OF STATE
FOR SECURITY ASSISTANCE, SCIENCE AND TECHNOLOGY**

Mr. BUCKLEY. Thank you, Mr. Chairman and members of the subcommittee. I must say, you and your colleagues have very eloquently defined the enormity of the problems that face this Nation, face the community of nations as a whole.

This is the defined task that all serious-minded people must concentrate their attention on during the weeks and months and years immediately ahead.

Incidentally, I would also want to express my appreciation to this committee for assembling such a distinguished group of truly experienced panelists so their observations and recommendations can be part of the input into this Government that helps sharpen perceptions and shape details and directions of policy.

I should look forward to reading the record of their input.

Mr. Chairman, I would like to ask if Senator Glenn would be kind enough to send me a copy of his letter to the President.

Senator GLENN. I will. I will have it before you leave today.

Mr. BUCKLEY. Great.

The events of recent days have demonstrated once again that it must remain an absolutely central objective of U.S. foreign policy to seek to limit the spread of nuclear explosives.

Since the beginning of the nuclear age, the effort to control the spread of nuclear explosives has been an endeavor that has enjoyed broad bipartisan support.

For almost three decades and through several successive U.S. administrations both the executive branch and the Congress have worked closely together in defining desired U.S. directions in the international nuclear field, in establishing a framework for peaceful nuclear cooperation and in defining the measures that must be taken to help assure that such cooperation is not put to misuse.

As you know, we are now engaging in informal consultations with various congressional leaders and very shortly we shall be issuing a statement of the administration's nuclear nonproliferation policy.

As I have stressed, this policy has not been formalized and promulgated. Consequently, I am not in a position to discuss the substance at this time. Nevertheless, I would like to take this opportunity to provide you with some general observations as to the way I believe the United States must approach the problem in the current climate.

There is no question that the further spread of nuclear explosives could have serious adverse implications for the security of all nations and important implications for our relations with our allies, friends and other nations. While fortunately there are only six States that have detonated nuclear explosives to date, we all know that we will live in a far less secure world if additional nations acquire nuclear explosives.

Such development will have adverse effects on the stability in the regions involved; it will seriously complicate our overall strategic posture; it will threaten man with the spectre of a holocaust; and it only can impede our ability to derive the full benefit from the peaceful atom in helping meet our vital energy needs. I can assure you therefore that the Reagan administration ranks nuclear nonproliferation as one of its top foreign policy issues.

This is why I am deeply concerned, that some of the strong reactions that have occurred to the recent Israeli strike on the Iraqi research reactor could damage the very fabric of international controls and safeguards that has proven so essential to our nonproliferation efforts for so many years.

This is the time that we must reaffirm our support for the rule of international law between nations, and commit ourselves to even stronger support, than we have in the past, to the international non-proliferation regime including international safeguards and the NPT.

As you know, from the first time that nations started to cooperate with each other in the civil nuclear field, concurrent efforts were made—largely through U.S. leadership—to develop a fabric of controls to help assure that assistance given in the civil field was not put to misuse. Accordingly, under U.S. leadership, the IAEA was formed in 1957 and, again under U.S. leadership, continued efforts have been made to strengthen the IAEA's safeguards system and to make the system applicable to an increasing number of countries. Also, under U.S. leadership the IAEA is engaged in a continuing program of self-analysis to identify deficiencies in its safeguards operations and identify where improvements are desirable. Moreover, under U.S. leadership, the NPT was negotiated and concluded in 1970 and there are now 115 parties to that treaty.

This is not the whole story. These multinational instruments have been supplemented by efforts to apply common supplier controls to nuclear exports including restraint on sensitive technologies and equipment. There are bilateral controls over selected aspects of the fuel cycle, such as reprocessing. In addition United States intelligence activities help detect suspicious or troublesome activities that could result in nuclear proliferation.

These steps that have been taken are unprecedented. Few if any industries are subject to greater international inspection and control than the nuclear industry, which is not to say that it should not be subjected to still greater supervision.

The IAEA safeguard system obviously is not foolproof and any informed critic can identify technical improvements that need to be achieved, particularly in the area of safeguarding more complex facilities in the fuel cycle. Also, far greater attention needs to be devoted to improving surveillance and other safeguarding techniques. In focusing on the agency's weaknesses, however, we should not ignore its real strengths. Rather than joining those who would undercut the IAEA, I believe we must work to strengthen it, to make it more effective.

We also reaffirm our strong support for the NPT. We will encourage additional countries to join that treaty, to forswear nuclear weapons, and to place their entire civil nuclear programs under international surveillance.

Nuclear facilities are now spread throughout the world, and nuclear power is vital to the energy security of many of our close friends and allies. Moreover, no nation has a monopoly on scientific inventiveness. The United States must remain an active participant in the field of international nuclear cooperation, and we must be sensitive to the role of nuclear power in reducing dependence on imported oil. We simply cannot afford to penalize the trustworthy

and responsible nations of the world because of the nuclear adventurism of a few countries.

Having made these points, Mr. Chairman, I believe we must recognize that no effective nonproliferation policy can be mechanistic in its application. Neither can the NPT nor the IAEA ever serve as our only protective measures nor be used as a pretext to allow otherwise worrisome development to occur. As vital as they are, these important instruments must be reinforced and supplemented by prudent bilateral export policies, greater supplier state cooperation and far more rigorous efforts in reducing the political motivations that prompt states in sensitive regions to toy with the nuclear explosives option.

It is in this spirit that the administration is approaching these issues, and I welcome this opportunity to appear before this committee.

I know you have a variety of questions about the new nuclear nonproliferation policy that the administration is shaping. It clearly would not be appropriate for me to anticipate the President's announcement by discussing the new policy publicly on this occasion.

I shall do my best to answer questions of a more general application.

Senator PERCY. Secretary Buckley, I thank you very much, indeed. I did not have a copy of your statement when I prepared my comments. I am very pleased with the close correlation with our views—the fact that the Reagan administration, according to your statement, does rank nuclear proliferation as one of its top foreign policy issues. We will hold hearings as soon as we do have the enunciated policy from the administration.

I agree we can identify technical improvements that need to be achieved, as you say, in the IAEA, but you come to the same conclusion I do. We have no alternative other than to work to strengthen it in every way we possibly can, and certainly we will work with you in encouraging all countries that we can possibly get to sign the Non-Proliferation Treaty. It is not a perfect treaty, but it is better than nothing, and it has been signed by 113 countries, and I hope all nations will do that.

Certainly in reducing our dependence on imported oil, Illinois, I think, has been the leading State.

Early on, it decided to use nuclear power. Through our doing so, it is, I think, the State in the Nation that is most dependent on nuclear power. In northern Illinois, 50 percent of our electricity comes from it. We reduced our dependence on imported oil through nuclear power even though we have the largest coal reserves in the country. We are for the peaceful use of nuclear energy, but we have to do everything we can to avoid the dangers of it.

We have a vote on, as you can see, and I will carry on for a few minutes. Hopefully, Senator Cohen will be back then.

Rather than recess the hearing because of the tightness of our time schedules this morning, for you and our panelists sake, we will try to keep on going.

Nuclear weapons capability is primarily a political decision. It is not a technical decision. Many factors go into the decision to acquire a nuclear weapons capability, though a Nation's perception of its security needs is probably foremost in their judgment.

How will the administration attempt to reduce the motivation to obtain nuclear weapons? What tools do we have at our disposal, and how will we apply them in various regions of the world?

Mr. BUCKLEY. This, Mr. Chairman, is central to the approach for cooperation with other nations, particular in sensitive and unstable regions of the world. They are reflected in budgetary requests we have made for security assistance programs and military cooperation to eliminate that feeling of vulnerability that must be one of the main propelling reasons for a number of countries to flirt with development of the capability. We believe that by working in close harmony with countries that feel threatened, to help remove that sense of threat will place us in the maximum position, the optimum position to try to dissuade them from going forward with explosives.

Senator PERCY. Israel's June 7 raid on Iraq's nuclear reactor brought the problem of real or just imagined proliferation of nuclear weapons to world attention. How has the administration's approach to nonproliferation policy changed in the wake of the raid? What will the implications of the raid be for U.S. nuclear cooperation with other countries, for instance?

Mr. BUCKLEY. If anything, it strengthens our commitment to the international regime and to the necessity to strengthen and enhance the capability of the IAEA so that safeguards created through these mechanisms will have their maximum utility.

Also, this particular incident has its roots in regional insecurity. Again, we feel that if the sources of that insecurity can be removed, perhaps the temptations can be removed as well.

Finally, it reinforces our commitment to encourage adherence to the NPT and to examine ways, as suggested by Senator Glenn, in which that treaty can be more effective.

Senator PERCY. You have mentioned that the United States should take measures to encourage other countries to join the Non-Proliferation Treaty. Taking the case of Israel, what can the United States do now to encourage Israel to sign the Non-Proliferation Treaty?

Mr. BUCKLEY. Again, this sort of action has been consistent, administration in and administration out. It has been keyed to American policy in this area. It is one thing to advocate; it is another thing to secure agreement. I do believe it is significant that Israel has stated that once it has peace agreements with its neighbors, it would be willing to submit itself to the international disciplines.

This emphasizes the role of the Camp David peace process toward achieving an environment where Israel might be more willing to agree to join the international community.

Senator PERCY. Certainly those of us who have contacts with many other countries join with you in doing everything we can to encourage this process.

I will have to recess the hearing now until the next Senator returns from the vote and I will ask that that Senator pick up right away and continue the questioning.

[Brief recess.]

Senator COHEN [presiding]. The committee will come to order. Mr. Secretary, we will proceed until the chairman and other members return. My understanding is that you have completed your opening statement.

As you know, the Senate Foreign Relations Committee received testimony last week from Mr. Roger Richter, a nuclear safeguards inspector with the International Atomic Energy Agency until he

resigned some 2 weeks ago in the wake of the Israeli raid on the Iraqi nuclear reactor. Mr. Richter quit because of his concern that the safeguards procedures were inadequate, that they simply do not provide sufficient protection against nuclear weapons development by the signatory nations. And he indicated that over 1 year ago, he wrote a report of his concerns to the Department of State's mission to the IAEA. In that report he said:

As a nuclear safeguards inspector, my concern and complaint is that Iraq will be able to conduct an aggressive, coordinated program to develop a nuclear weapons capability during the next 5 years under the auspices of the Non-Proliferation Treaty and while not violating provisions of the NPT.

Now the IAEA safeguards are totally incapable of detecting the production of plutonium and large-sized material test reactors under the presently constituted safeguards arrangements.

That was his statement before the committee. What has the United States done since Mr. Richter delivered the report to the Department of State 1 year ago to respond to questions he raised at that time?

I know that the letter did not come in during this administration but what has the State Department done?

Mr. BUCKLEY. I cannot address the specific response to the report you cite because, frankly, I don't have that knowledge. I do know, however, that the prior administration has been working and we will continue to work with supplier nations to try to increase the safeguards in terms of what is, in fact, supplied to various nations, such as Iraq, so as to minimize the capabilities.

I am advised that there are some members that understand how these things work who might give you some of the details of Mr. Richter's testimony but that, in a sense, is beside the point.

There are weaknesses in the system. Nobody denies that. The problem that lies ahead of us is how do we identify those weaknesses, how do we adopt better safeguards, more rigid discipline in order to increase the confidence that the world community can rest in IAEA, and it is very much that objective that we are assuming.

Senator COHEN. Does it strike you as being reasonable that a signatory nation should have the right to veto inspectors?

Mr. BUCKLEY. We live in a world with all kinds of cultures, all kinds of prejudices, and so forth. I do not believe anyone should have the right to veto the qualifications of an inspector.

Senator COHEN. But if we say that countries should not be allowed to veto inspectors because of their qualifications but that they can pick and choose after the agency has recommended certain inspectors, then, as a practical matter, you have undercut the ability and the authority—

Mr. BUCKLEY. These are precisely the kinds of issues that have got to be addressed and addressed very seriously.

Senator COHEN. In addition to having the right to veto inspectors, do you agree with Mr. Richter's statement that inspectors for the International Atomic Energy Agency are authorized only to verify that the declared material accountancy balance is correct?

In other words, as I understand it, one nation can make a declaration on a sheet of paper as to the amount of material that is on hand. Then the agency is bound to certify as to the accuracy of that particular statement. That is like saying if you have two or three buildings on the premises and the owner of those buildings says all the material

I have is contained in building No. 1 and you may go in and certify that all that material is there but you may not enter buildings Nos. 2, 3, 4, or 5?

Does that sound rational?

Mr. BUCKLEY. I am not qualified to judge whether that is an accurate statement of the actual situation with respect to the application of the IAEA regimen. What I can say is it will be the purpose of this administration to go into all of these issues and have people who have the competence to make judgments and to work with other members of IAEA, to work with the supplier community in order to enhance and make as effective, as human ingenuity can, the safeguards the world needs.

Senator COHEN. Let me ask you as an abstract proposition then, do you think the agency should be allowed to look for clandestine operations? In other words, should they be bound to the certification of any nation that has in its possession nuclear capability? Do you think the agency should be able to go beyond the bounds of what is declared by that nation?

Mr. BUCKLEY. I believe that the world community needs to have the capacity to snoop out cheating. Whether that is best done through IAEA or some other way, I don't know. But certainly we need to have that capacity. We also, because any human instrumentality can have a defect—I believe for one that the United States should not base its total reliance on any one instrumentality.

Senator COHEN. As I understand it, under the present negotiated agreement between the IAEA and Iraq there is a limit of some three inspections per year and those inspections have to be announced well in advance of being conducted. The question is, does that sound like a rational procedure to follow, giving those countries who are about to be inspected sufficient, advance notice in which they could, in fact, cover up their illicit activities?

Mr. BUCKLEY. Senator, I don't have any competence whatsoever in the details of how the IAEA operates.

Senator COHEN. I am asking you as an abstract proposition. If we are talking about trying to strengthen the mechanism, make it steel instead of straw, it seems to me that to announce inspections in advance, to be limited to three inspections a year, to allow the nation that is in possession of the material to veto inspectors, to confine that inspection agency to a piece of paper and to certify the accuracy of the accounting procedures to me—I would have to come to the same conclusion Mr. Richter does—is a misleading process; in other words, we have the form but no substance.

We have the form of control but, in fact, very little substance to carry out that objective.

Mr. BUCKLEY. It is my understanding, Senator, as I stated in my testimony, that people who are very knowledgeable about this process are able to pinpoint many flaws, but they should not allow us to distract ourselves from the fact there are many benefits, the world community agrees, in fact, have been brought by this organization and it reinforces the paramount need to examine every facet of IAEA and its procedures and make sure we have the best possible safeguards in place.

Senator COHEN. Senator Glenn?

Senator GLENN. Thank you, Mr. Chairman.

Mr. Secretary, you just returned from Pakistan and discussion with that nation. It is general knowledge around the world or generally assumed that Pakistan is driving as hard and fast as they can toward a nuclear weapons capability. We are proposing an arms package for Pakistan. Were you able to get any assurances from the Pak's on their intention not to develop nuclear weapons in exchange for our help in other weapons matters?

Mr. BUCKLEY. The President has told me—I brought the issue up—not in quid pro quos, not in those terms, in our negotiations and discussions with his ministers and later in meeting with President Zia, I underscored the fact that our request for modification of the Symington amendment should not be interpreted by anyone as any step back by the United States from its commitment to limit proliferation of nuclear weapons, and underscored the fact that if the Congress granted the modifications we sought, that this should not be interpreted as a step back by the Congress of the United States.

I was assured by the ministers, I was assured by the President himself that it is not the intention of the Pakistani Government to develop nuclear weapons, and, furthermore, and I think this is of great interest, it was pointed out that in the recent meetings between the Foreign Ministers of India and Pakistan, the issue of defusing, if you will, what many people see as a competition on either side of their mutual borders, that this would very much be an objective.

Senator GLENN. Knowing what we know from our own intelligence sources and those of most other nations around the world that follow these nuclear matters, will the President of the United States be willing to state that it is his opinion that Pakistan is not in the process of developing nuclear weapons?

Mr. BUCKLEY. One has to make the distinction between the nuclear option and nuclear weapons.

Senator GLENN. That is a big distinction, I agree. With the way nuclear materials and technology are floating around the world, we can say the "nuclear option" is almost approaching universality these days—probably not too far from it, anyway.

Maybe that overstates it to some extent. So there is an important difference there as to what General Zia ruled out.

With the statements of Pakistani officials in the past and what we know, even what has been in the public press about their efforts to gain what only can be considered bomb-making capability, is it your view that we should go ahead with the arms sale to Pakistan without assurances that they are not in a weapons production mode?

Mr. BUCKLEY. That assurance has been given.

Senator GLENN. By the Pakistani Government?

Mr. BUCKLEY. By the Pakistani Government.

Senator GLENN. That was not exactly what you said a moment ago. You said they—what, had no intentions?

Mr. BUCKLEY. Of developing nuclear weapons.

Senator GLENN. Did you ask them whether they are developing nuclear weapons or not?

Mr. BUCKLEY. I was told they were not. But in any event, to get to the substance of your question, Senator, whatever their activities are, whatever the intentions or capabilities, the policies that we have followed in the last couple of years have obviously not slowed down or

changed the direction of whatever it is they are doing in developing certain atomic research facilities and capabilities.

We do believe that our best chance to influence the outcome, influence the future direction of what might be Pakistani intentions, is to help remove the very significant sense of insecurity that that nation suffers from today. We believe that if that real insecurity can be removed we will not only have a better chance to make sure that explosives are not detonated, but also would be in the best position to use the argument of persuasion that this would not be in Pakistan's best interest.

Senator GLENN. I appreciate that.

Let me ask one other question, though.

I know he stated he has no intention to develop nuclear weapons. Did you ask him whether they were developing capability to make a nuclear explosion?

Mr. BUCKLEY. No.

Senator GLENN. Because I can see how they can develop a bomb capability and call it a peaceful nuclear explosion [PNE], as India did. This was a trigger that set off Pakistan's interest in developing their own weapons system and they in their own minds can define it as a peaceful nuclear explosion and in all honesty sit and tell you they have no weapons intention, but that is a fine line that we have refused to buy with India. A bomb is a bomb is a bomb, whether it is called PNE or whether it is used for military purposes.

Mr. BUCKLEY. I must say, Senator, I made that point.

Senator GLENN. What was his response?

Mr. BUCKLEY. We did not see distinctions between "peaceful" explosives and weapons.

Senator GLENN. What was his response?

Mr. BUCKLEY. He understood—

Senator GLENN. He did not indicate his own acceptance?

Mr. BUCKLEY. He did state, No. 1, they have very real energy needs, to be supplied for the nuclear power route; No. 2, that the quality of the upgrading of the fuel simply would not produce the bomb grade quality.

Senator GLENN. How many electrical generating plants that are nuclear-powered are they developing?

Are they developing any?

Mr. BUCKLEY. That, sir, I don't know.

Senator GLENN. I am told they have one, 130-megawatt plant which would hardly justify the clandestine activity we are aware Pakistan has gone into around the world to buy all types of equipment quite unrelated to anything to do with a 130-megawatt electrical generating plant.

I think the President would be very hard pressed in this instance to be able to assure us under the Arms Export Control Act limitations, the so-called Symington amendment, which we have discussed in the past, that we are not selling to a country that is bent on making nuclear explosives or a bomb by any other name.

I am sympathetic to the situation that in helping them we may well influence them away from a bomb capability, but it seems to me that is the debate we had back here in 1978, whether or not we are going more and more business as usual around the world, spread

the technology, spread the equipment, spread the materials, spread everything. We debated that fully, and I am not unsympathetic, was not unsympathetic to that.

There is a question in my mind, despite NPT, and all the acronyms, as to whether we can set up any effective controls.

From what you have said, I wonder whether the administration's view on this is not going to be back to business as usual in trying to get our people involved around the world as opposed to going to the government-to-government control route.

Would you give your views on what direction the administration should go?

Mr. BUCKLEY. As I mentioned earlier, Senator Glenn, the administration has not finalized its policy and I don't think it is proper for me to try to anticipate the specifics.

Senator GLENN. When will the policy be formulated?

Mr. BUCKLEY. I will say I don't think there is any intention to just go and start selling nuclear technology and materials, and so forth, to all comers. Quite the contrary. The emphasis was on the desire to work more closely to develop more rigid, more effective standards among world suppliers to do what is possible to bring it into control. In the meantime, with respect to the relationship of this particular country where, yes, there is a tremendous question as to what may be real intentions down the line. The fact is, sealing ourselves off has not affected their progress on their nuclear experimentation, development studies, and so forth.

By the same token, that country is feeling more and more insecure because it does not have access to the kind of more modern weapons that are required to meet their defensive needs.

Senator GLENN. They felt insecure because they didn't have a bomb because their neighbor next door does have a bomb, too. That is the reason they set out on this course.

Mr. BUCKLEY. That is what I found very hopeful, the information that these two neighbors are now sitting down together to, among other things, discuss that precise issue.

Senator GLENN. Did you indicate when you went to see General Zia that if he sets off a test of any kind that it would result in our military assistance being terminated by American law.

Mr. BUCKLEY. He obviously knows what our laws are.

Senator GLENN. Well, I am concerned, though, they are drawing a fine line here between a peaceful nuclear explosion and weapons development program as India did.

They are playing semantics with us and claim they have not violated anything, just as India claimed they had not violated anything because it was a peaceful nuclear explosion. But by our standards, it should result in termination, if we interpret our law. Our law cannot be misinterpreted. We should terminate if they set off any kind of a nuclear explosive.

Was this discussed with him?

Mr. BUCKLEY. Not in that specific context, Senator, but I did say that we were in no way backing away from our fundamental concern about nuclear proliferation and that we did not make a distinction between peaceful and nonpeaceful.

Senator GLENN. Do you feel the President would now assure us with the proposed arms package that in light of your conversation with

General Zia, the President can send us a message and say he feels assured that Pakistan is not developing a nuclear explosives capability?

Mr. BUCKLEY. There is, again, a distinction between developing a capability and utilizing a capability. I believe you referred earlier to the status of our intelligence, and so forth.

I can't pursue, frankly, this issue in open session.

Senator GLENN. I, too, am concerned with how far we are going with this in open session. I think we might want to have some private conversations as we have had in the past. My own view is the President would be very hard pressed to indicate to us with any degree of sincerity that he really believes Pakistan is not developing a nuclear explosives capability.

I believe my time is up, Mr. Chairman.

Senator PERCY [presiding]. Thank you very much. We are happy to have Senator Pressler join us as the chairman of the Foreign Relations Committee that deals in the area of nonproliferation.

The Foreign Relations Committee will be holding hearings as well.

I would like to just follow up on a question in your discussions with President Zia.

Did I understand you to say the specific question was not put to him, or the statement made to him that our whole program with him, as proposed by the administration, would be jeopardized if they set off a so-called peaceful nuclear explosion; that we did not look on that as a peaceful explosion in the case of India and we would not in the case of Pakistan? It would endanger our whole relationship. If that question and statement had not been made to him as of now, would it not be a good idea for the administration to clarify that because that is the clear intent and understanding of Congress, and it would be the condition under which we would be working in moving forward with the requested program by the administration.

Mr. BUCKLEY. I underscored that our fundamental concerns have not changed.

Senator PERCY. Thank you.

Even though you haven't developed the specifics of your non-proliferation policy and will announce it soon, is it possible at this stage to differentiate the thrust from, say, the previous administration? That administration sometimes is looked upon as not tough enough in this regard, and others felt that it was so restrictive that it proved counterproductive.

What difference in philosophy will we have from the Carter administration?

Mr. BUCKLEY. In the first instance, as I indicated earlier, I think you will find this administration placing much greater emphasis on the causes of a desire to develop a nuclear capability, mainly insecurity. And to the extent we are instrumental in developing regional stability and encouraging regional stability, then we have gone a long step in the direction of removing compelling reasons some nations seem to feel for developing this weapon.

No. 2, we are going to rely far more on international cooperation to try to develop national and global safeguards, global approaches to the supply of technology and materials to make it more difficult for individual nations to do it on their own.

No. 3, we are going to try to reestablish ourselves in the role of a reliable supplier, therefore, getting ourselves back into a position

where we are able to have a more direct influence on the decisions of other countries in the selection of technologies, and so forth.

Senator PERCY. I am going to restrict myself to one more question so that we can conserve your time. We will then go on to our panel. You have just returned from a trip. The U.S. domestic nuclear policy has important ramifications for international nonproliferation policy. We certainly cannot ask our allies to forego breeder reactors and reprocessing if we are going to go ahead ourselves. How is the administration coordinating its domestic nuclear policy with its international nonproliferation policy?

Mr. BUCKLEY. In the process in which we utilize the so-called interdepartmental groups, and so forth, to develop recommendations to provide to the administration, the White House, we have drawn heavily on the input of the Department of Energy.

We specifically recognize the need that our domestic and international policies be synchronized, that we are not speaking with two different voices. And we also have placed a great deal of reliance on the expertise available to the Department of Energy.

With respect to breeder reactors and the discussions with the other supplier nations, other advanced nations, that would be a second stage of activity after the basic policy decisions.

Senator PERCY. Thank you very much, indeed.

Senator Levin?

Senator LEVIN. Thank you, Mr. Chairman.

I believe you have already been asked by Senator Cohen about some of the statements made by Mr. Richter.

I am not going to go into any great detail. I understand you feel you are not in a position to comment on the technical aspects of it.

In sum, he has stated that there are many flaws, fatal flaws in the inspection mechanisms, including the following: The inspection is limited to materials and processes which are covered by the safeguards which excludes significant materials and processes which could be used for military purposes.

In essence, some of the key possible weaponry developments are never examined by the IAEA.

Another weakness is that the inspection is limited to those facilities which the host country says contains materials covered by the safeguards. In other words, the inspector must take the word of the host country and cannot independently search for clandestine activity. He stated, and this is a quote, that—

The IAEA safeguards are totally incapable of detecting the production of plutonium in large size material test reactors under the present constituted safeguard arrangements.

Would you say in general, either in response to those allegations or based on other information you have, that our present safeguards are adequate?

Mr. BUCKLEY. As I said to Senator Cohen, No. 1, I am not in a position to comment on the accuracy of statements made by Mr. Richter. I simply don't know.

No. 2, anybody and everybody who has seen the IAEA situation can identify specific areas where there are great inadequacies, but this should not cause us to discount the utility, the very great utility of this organization.

What we should be encouraged to do is to build on what this organization has already developed, identify areas of weakness, and then work with other nations to achieve these objectives.

Senator LEVIN. I do understand the answer. Do you have a conclusion as to whether the present safeguards are adequate? I understand you want to improve them and identify inadequacies.

In general, is it your position they are adequate or not?

Mr. BUCKLEY. It is our position the organization performs some very, very valuable tasks. It helps identify diversion of materials, but we all recognize that much more needs to be done in the whole area of international safeguards. We believe this is the instrumentality through which to work.

Senator LEVIN. Mr. Secretary, yesterday the President of Iraq said that they must acquire nuclear weapons. Given that avowed intent stated by the President of Iraq, would it be consistent with NPT now for signatory nations to help Iraq rebuild their reactor?

Mr. BUCKLEY. This is obviously a statement with which we have total, absolute disagreement.

We have to see it in context to find out really what was said, but we do not accept any proposal or proposition that there is any justification for any nation to acquire this capability.

Senator LEVIN. The context of the statement, I believe, is printed in this morning's New York Times. I wonder if you have had an opportunity to see that statement?

Mr. BUCKLEY. Just to get to the first couple of paragraphs while arriving here. I think it was said it was taken from a transcript of a radio broadcast.

Senator LEVIN. Assuming you are satisfied with what he said, as the New York Times quotes him as saying, and the context is such that the words I have used are a fair summary of the context, given that and those assumptions, would you believe it is consistent with NPT for signatory nations to help Iraq build their nuclear reactor?

Mr. BUCKLEY. We have to examine the facts. We do not want to take steps that will lead to development of nuclear weapons.

Senator PERCY. Senator Levin, I think it might be helpful if Secretary Buckley could study that statement, the context in which it is made. I know it was in a conversation I had with Ambassador Eberle this morning. It was a shocking statement and one he felt that justified Israel's actions.

I think the Department should give a considered judgment on that. We will insert it in the record at that point then. We will keep the record open for your reply on that.

[The reply follows:]

In an area as volatile as the Middle East any move toward proliferation or any statement which raises the threat of proliferation must be regarded with utmost gravity. The acquisition of nuclear weapons by any Middle Eastern country cannot but be destabilizing; it can only increase the potential for regional disaster.

The reported statements remind us of the need to deal with the deeper antagonisms in the region. They also underscore the need for especially strong safeguards and for nuclear export controls that are effective enough to provide protection in this volatile part of the world.

The U.S. will continue to make special efforts to deal with the proliferation problem in the region. We intend to work responsibly with other nations to assure that the integrity of the NPT is maintained and its effectiveness strengthened.

Senator LEVIN. I was going to suggest not only that, Mr. Chairman, but also keeping the record open to give the Secretary an opportunity to comment on Mr. Richter's testimony, to let us know whether there are any disagreements with the long list of inadequacies that he has pointed out in the treaty.

I just have a couple of very short questions of you.

One, do you know whether or not the materials supplied by France belong to Iraq or to France? Does France retain title of that material under the contract?

Mr. BUCKLEY. I don't know.

Senator LEVIN. Do you know how much notice is necessary to be given for a signatory nation to pull out of NPT?

Mr. BUCKLEY. Very short period.

Senator LEVIN. Would you say that is a weakness of NPT, that even if all of these inspection inadequacies could be overcome, that if a nation can give 3 or 6 months' notice and say, "I am no longer a member, nice talking to you," then that is a basic inadequacy also?

Mr. BUCKLEY. I think it is the kind of matter that needs to be discussed in the conference Senator Glenn is recommending.

Senator LEVIN. Thank you, Mr. Chairman.

Senator PERCY. Thank you.

I understand Senator Cohen has one additional question and Senator Pressler would like to ask a couple of questions.

Senator COHEN. Mr. Chairman, if I could.

Mr. Secretary, you indicated we intend to become a reliable supplier once again. And I recall last year the debate on whether we should send fuel to India. The question was whether or not India had violated the terms of an agreement with respect to the use of nuclear fuel. At that point, the argument was made that we had to continue our sale and transfer of fuel to India or else they would threaten to go elsewhere.

I was wondering, if we are going to once again become a reliable supplier, would such a posture on our part include very clear sanctions if there is, in fact, a violation. A breach of an agreement would terminate the sale without regard to the kind of threats or intimidation that if you don't sell it to us we will get it from the Soviets or elsewhere?

Mr. BUCKLEY. I believe a reliable supplier means somebody who will live up to an explicit agreement. That is if one party to the agreement violates its terms, then the other party has no obligation to move forward.

Senator COHEN. I think there has been a great deal of hypocrisy on the part of countries around the world in the wake of the Israeli raid. If you hand parts of a gun to a country and they start assembling the gun, you cannot turn your back and remain indifferent to the consequences. You may have very well invited an attack on that nation, as was done in the Israeli case.

The nation should not be heard to complain that it has, in fact, been attacked or those nations who supplied the parts have helped in some way to stir that particular attack.

I recall, for example, what the German reaction was to the Carter doctrine of recommending they not ship nuclear technology to Brazil. I happened to be in Germany at the time that decision was made and

I can testify as to what the reaction was. What has been the reaction from our allies—Germany, France and other nations who have this technology—in the wake of the Israeli raid? Have you seen an indication that they recognize the weaknesses in our system; that they are willing, perhaps, to put aside some of the competitive nature that currently exists in the sale of nuclear technology?

Mr. BUCKLEY. I believe prior to that raid you saw movement in that direction, very significant progress toward recognizing the responsibility of supplier nations to be much more careful as to what technology and materials are transferred, to work in close cooperation to develop a common regimen to be applied.

I might add, I think undoubtedly credit for a great deal of that movement should be laid at the feet of the Carter administration for its emphasis on the need. Our quarrels may be methodological but not in terms of objectives.

In terms of the response since the raid, I left here the day that was announced and I didn't return until last Saturday, and, frankly, I am not up to speed on that. I suspect this may have been covered by Under Secretary Stoessel in his testimony.

Senator PERCY. Thank you very much.

Senator Glenn, you have a couple to finish up.

Senator GLENN. Mr. Secretary, can you tell us when the new administration policy will be ready? Do you have a target date for this?

I know we have discussed this before and it has been difficult to get it together. I appreciate the complexity of it.

Mr. BUCKLEY. My understanding, Senator, is that there is a target period which will be early in July.

Senator GLENN. About 2 months ago, it was going to be ready in a couple of weeks, certainly 3 weeks. This has been 2, 2½ months ago. I haven't written letters on it, but we hoped to have this pretty much in place a long time ago. I hope we can put a priority on this.

You indicated total disagreement with rebuilding the Iraqi facility, particularly in light of their expressed bomb intentions. Pakistan in the past has had just as vociferously expressed bomb intentions. Bhutto, when he was Prime Minister, said, after the Indian explosion, that Pakistan would eat grass to get a similar nuclear weapons capability. I find it difficult to differentiate between the two countries.

Mr. BUCKLEY. I said one would have to examine the specific facts in the case of Iraq. I said we totally condemn a statement that there is any excuse for a nation to come up and develop a weapon.

Senator GLENN. And your opposition to weapons development would be just as solid toward Pakistan as it is toward Iraq?

Mr. BUCKLEY. Yes.

Senator GLENN. I believe the staff brought down a copy of my letter to the President. It seems to me we can control this now: Iraq, Pakistan, and anyone else we believe are making a bomb. If we can get the nuclear suppliers conference to come back together again—I don't know exactly how many members of that group there are now. I think it is something like 14, 15. Ambassador Smith?

Mr. SMITH. Fourteen or fifteen.

Senator GLENN. I don't know the exact figures or percentages, but I would guess 90 percent of the world's nuclear trade that could lead to nuclear weapons development comes from half the countries. I don't think that is overstated too much. If we are to prevent Iraq

from embarking on the path that its present leadership indicates it is going to embark on; if we are going to control Pakistan, we should get these nuclear supplies together as soon as we can and talk about what kind of restrictions on sensitive technology, materials, and equipment—all three—we can agree to. We have a unique opportunity right now while world attention is focused on this issue. While we try to work out the problems with NPT and try to make IAEA more efficient—and make it more of a real preventive mechanism—while we are trying to do these longer term things we should get the nuclear suppliers together. It is a unique opportunity because it won't be long, maybe a matter of a very, very few years before there won't be just six nations capable of supplying this technology, this technology would have spread to make 12 nations or all 15 significant nuclear suppliers.

The bigger that suppliers club becomes, the more difficult it is to control this, and time is running out.

It seems to me a nuclear suppliers conference gathered now could perform a very, very valuable function in determining restrictions on the sale of nuclear equipment—not only materials, which is all IAEA and NPT cover but also the equipment, and the technology. Most of the developing nations that would like to have this capability do not have indigenous production capacity to build the hardware, the equipment to do the reprocessing and enriching on their own.

Some of them might be developing this equipment, but that is a long way down the road. I think time is running out.

I think if we can have that kind of a conference immediately—I don't know whether it can be convened within weeks or not, I guess it probably could. That is what I ask in my letter the President consider doing. I hope you could, in advising him, give him a favorable response to that and back that up.

In your basics, you outline, for instance, the need to address the causes of the desire to develop weapons, by promoting regional stability. Those are long-term things. In the case of Pakistan, for instance, how are we developing regional stability there? Now we are really talking long term. We are talking about Afghanistan on one side and India on the other. It is a good example of how long term some of these considerations may be.

Your second point, "We wanted to rely on international cooperation with regard to technology and material." That comes back again to our nuclear suppliers conference.

If we can get them to agree on this, that is a good first step.

Your third point was, that the United States would reestablish its role as a reliable supplier, I have never known quite what we meant by that. I guess if we sign a contract, we mean we have a contract, but once again, the Indian situation last year was such that it was debatable who violated what contract first.

I fought that one very hard on the Senate floor and lost on a 46-48 vote. India has since come out and substantiated our worst fears at that time that they will go their own route.

I will say that France has been a reliable supplier in Iraq. How has being a reliable supplier prevented the spread of nuclear weapons?

Mr. BUCKLEY. No. 1, don't undertake a relationship unless it is in accordance with your understanding of that which will not result in proliferation, but having done so, don't change the terms after the fact.

Senator GLENN. Well, what if there is a change in intent in the country you are a supplier to? Do you not change your attitude then? This is a good example in Iraq. France entered into a relationship. Later on they found out, the French believed the Iraqis were eventually, not in the immediate future, but they were developing a long-term bomb capability. I don't know of anyone that denies that. The debate is only on the timing of this and how long it would take to get that kind of capability.

The French themselves became concerned enough about this that they irradiated the fuel so it would be more difficult to use. They also had arrangements for return of the spent fuel, which also shows they had some concern. They had their own doubts. If they were in turn being a reliable supplier, some of these intentions of Iraq developed after the original contract apparently, so they tried to put in some of their own French-Iraq safeguards after the original contract was signed.

It seems to me if we just say we are going to be reliable suppliers regardless of what happens, we may get ourselves into some very difficult situations.

Mr. BUCKLEY. If you write the proper safeguards into the original contract, then you are safeguarded because then there will be a breach by the party.

Senator GLENN. Bilateral safeguards, not IAEA safeguards. I agree that is important. I wonder, though, how much we want that reliable supplier part, desirable though it is, and sacrosanct as contracts are. It seems to me situations do change and where a nation has obviously just embarked on a weapons development plan, once a contract has been signed, that we would certainly want to reconsider, perhaps, whether we would want to help them go right ahead and develop nuclear weapons or not, just to say we are not developing a contract which is what we did with India. India used their heavy water against our intentions as to how it was to be used. In the interest of being a reliable supplier, we sent them that next shipment.

Maybe you can answer another question on India. Have we made the second half of that shipment we approved last year? I wrote a letter to the President back in February asking that that second shipment be held up.

Mr. BUCKLEY. There are discussions coming up in India in this whole area. I don't want to prejudge the results of the discussions, although one of the items on the agenda would be the option of termination of the relationship.

Senator GLENN. I would hope we could be kept advised on what the status of that is.

I don't know that I received a reply to that letter, maybe just an acknowledgement of the letter.

I know you are supposed to be out of here shortly.

Senator Pressler has questions. Not to keep you overdue here, but any additional questions we might submit in writing. I would appreciate, as quickly as you can, your giving us a date on which we can expect to have nonproliferation policy ready to announce.

Senator PERCY. Thank you, Senator Glenn.

Members of the committee will have additional questions and obviously, Senator Pressler, anything you would like submitted will be submitted on your behalf.

Senator PRESSLER. First of all, I want to thank Senator Percy for holding these hearings. I think they are extremely important.

Let me say, however, that in the hearings we have had in the Foreign Relations Committee in the last couple of weeks, I have become very frustrated and lost a lot of hope for ending nuclear proliferation.

Aside from the use of force, as Israel did, I see little in the framework of the agreements we now have to slow down proliferation. In fact, they may well increase it in many instances.

The West has done much poorer than the Soviet Union. The Soviets won't even let students who know much about nuclear development get out of the Soviet Union, even to return to the satellites in Eastern Europe.

But there are at least five or six countries that I would like to ask you briefly if you feel they have the bomb or capability for it? Perhaps you couldn't do this in open session, but I think there is a certain amount of public awareness and a certain amount of knowledge about these areas.

First of all, does Israel have the bomb?

Mr. BUCKLEY. No. 1, we do not know as a matter of fact whether Israel does or does not. No. 2, any questions that you ask me that get into the area of intelligence, I am afraid I have to say this is a matter for closed session.

Senator PRESSLER. Sure.

Mr. BUCKLEY. At which point you ought to have somebody more knowledgeable than I as to the specifics.

Senator PRESSLER. What about Argentina, what is your general sense there? If it is not something that is not generally publicly known, then you obviously cannot answer it. What about Argentina?

Mr. BUCKLEY. We have no knowledge they have a bomb.

Senator PRESSLER. Korea?

Mr. BUCKLEY. No.

Senator PRESSLER. South Africa?

Mr. BUCKLEY. We have no knowledge.

Senator PRESSLER. Or Brazil?

Mr. BUCKLEY. No knowledge.

You are asking the wrong guy, is what I am trying to say.

Senator PRESSLER. I thought I would give it a try, anyway. I think Senator Glenn has made some very imaginative suggestions in respect to improvements in the IAEA. But after hearing the testimony of the IAEA inspector who resigned last week, even with these improvements, we cannot have inspectors searching the whole country. The level of proliferation that we have seems almost hopeless. Are we entering an era in world politics when we are going to have to go back to the theories of Hans Morgenthau, or somebody in realistic politics? Maybe what Israel did in Iraq is the beginning of a new era of nuclear nonproliferation. Maybe that is the only approach the three or four most powerful countries in the world can take, other than to have anarchy. If the bomb is in the hands of Brazil, Argentina, Korea, South Africa, India, Pakistan, to name a few, and I tend to think it potentially is, we really have a system of international anarchy.

It is only a matter of time in the next years when something very disastrous can happen.

Do you really think we are just spinning our wheels in the framework of these agreements we are talking about?

Mr. BUCKLEY. No, I don't. First of all, the options of nuking the nukes, whatever you want to call it, is simply not an acceptable approach. It is a very serious problem.

No. 2, the fact there may be defects or deficiencies in existing mechanisms ought not to blind us to the fact the existing mechanisms have accomplished a tremendous amount today and, No. 3, they can be improved.

It seems to me recent events provide greater sense of urgency to the world community, certainly to this administration, to seek ways in which we can, in fact, improve the techniques, the approaches, safeguards, you name it. I would suggest, incidentally, the panelists who will be testifying after me will probably be able to give you a far better picture than I would of what, in fact, has been accomplished and can be accomplished through these international agreements and organizations.

The thing that concerns me is that people turn negative at this stage and say because there is room for improvement, the organizations are no good or the NPT should be discarded.

Where do we turn to next? The fact is these are institutions in place, it is our job to see to it, to use our leadership to reassert the leadership, persuasive leadership to get effective action and not let up until we do as careful, as effective an international regime as possible.

Senator PRESSLER. So your suggestion, then, is we move forward as quickly as possible in the framework of our agreements and perhaps new agreements.

Mr. BUCKLEY. Right.

Senator PRESSLER. And we try to improve them as much as possible.

Mr. BUCKLEY. And not only through the institutionalized forms of the NPT and the IAEA, but also through the suppliers.

Senator PRESSLER. I hope it works.

Mr. BUCKLEY. It seems to me self-help is not an alternative.

Senator GLENN. Will the Senator yield? I hope nothing I have said today will indicate any effort to dump NPT or IAEA. I just recognize them as the only game in town, with all their frailties.

Let's strengthen them and make them better. That is one reason I want to get the nuclear suppliers together to stop the flow of goods and technology temporarily. Not rebuild the Iraqi reactor—and, hopefully, cut off Pakistan while we put some teeth into NPT and IAEA. I don't want my remarks being misinterpreted as trying to dump those organizations.

Senator PERCY. Secretary Buckley, I just want to say privately, between you and me, Senator Pressler, when he came on the Foreign Relations Committee, was in the unenviable position I was in years ago, at the bottom of the line. All the committee assignments went out and other glamorous subcommittee assignments were taken by other Senators. He was left with nonproliferation and oceans. I said, "Don't be dismayed with this. You not only have the toughest problem, you have the oceans. That is three-fourths of the world you have in your subcommittee."

He said, "Yes, but it is all underwater."

I was particularly anxious he take this subcommittee because it was the one on which I was ranking minority member. I found it fascinating and I think Senator Glenn has made tremendous contributions through the years. I think this whole field will be probably one of the most important things he has done in his Senate career.

I think that will be the case with Senator Pressler as well. I am glad to see the very high priority the administration has placed on this area now.

We will look forward very much indeed to working closely with you. It is the toughest, most challenging problem I have ever faced in public life. It is totally frustrating as to which route is the best way to go. We put together legislation after working on it for 3 years, but we realized its imperfection before we even sent it to the President for signature.

We recognize that we have to constantly hone it, perfect it in every way we possibly can. We are totally open to finding better approaches and a new look at it is a good thing now. We are all convinced that if we don't solve this problem, the world is not going to be a very habitable place a few years from now. That is the most tremendous problem any human being could have placed in his lap. You have it smack dab in yours. And you will share the responsibility of those of us who really deeply believe this is one of the most difficult problems, and one of the most challenging ones, we face today.

We cannot walk away from it. We have to solve it. It is going to fracture some of our relationships abroad but they have just got to understand its importance.

I have sat in Geneva in those sessions day after day. The world is looking to our leadership to find a way out of this dilemma.

Thank you very much indeed for your presence today. We appreciate it very much.

We will call our first panel, the Honorable Gerard Smith, Thomas Schelling, and Joseph Yager.

Gentlemen, I would like you to know that I will be called to the floor to handle an amendment on the reconciliation bill. We are going to be here through the night, I think, so I will have to go down and take that amendment in sequence, but Senator Cohen thoughtfully has said he will stay on to Chair the hearing.

I hope they will not call me until you finish your panel.

I want to welcome this panel of distinguished and expert witnesses on nuclear proliferation issues.

Ambassador Gerard Smith currently is associated with Consultants International Group and served as Chief of the U.S. Delegation of the SALT I talks. In the previous administration, he was the President's special representative for nonproliferation. I might say he has authored one of the finest, most provocative and insightful books I have ever read on the subject. Any student of this subject should be a student of that book. He will borrow a better understanding of the complexities of it.

Mr. Thomas Schelling, professor of political economy, John F. Kennedy School of Government, Harvard University, Cambridge, Mass., since 1974; has been a consultant for the Departments of State, Defense, and the Arms Control and Disarmament Agency; and participated in the Nuclear Energy Policy Study Group's work on nuclear power: issues and choices.

Joseph Yager, is a senior fellow in the Brookings Foreign Policy Studies Program, The Brookings Institution, Washington, D.C., and has written two studies on nuclear cooperation and nonproliferation in U.S. foreign policy.

Gentlemen, we look forward to your combined experience and knowledge shedding light on this subject. I look to guidance from you in forming the direction of nonproliferation policy in the 1980's.

If each of you would be prepared to summarize your comments, the full statement, of course, will be incorporated in the record.

Ambassador Smith?

TESTIMONY OF GERARD C. SMITH, PRINCIPAL, CONSULTANTS INTERNATIONAL GROUP, INC., WASHINGTON D.C.; THOMAS C. SCHELLING, PROFESSOR OF POLITICAL ECONOMY, JOHN F. KENNEDY SCHOOL OF GOVERNMENT, HARVARD UNIVERSITY, CAMBRIDGE, MASS.; JOSEPH YAGER, SENIOR FELLOW IN THE BROOKINGS FOREIGN POLICY STUDIES PROGRAM, THE BROOKINGS INSTITUTION, WASHINGTON, D.C.

Mr. SMITH. Whatever else may fall out from the recent reactor bombing, it should confirm the correctness of President Carter's conviction that nuclear proliferation is a central security threat to the United States and the whole world and put forever to rest the foolish notion that the spread of nuclear weapons might somehow be a force for stability.

The Nuclear Non-Proliferation Act of 1978 put it in blunt terms:

The proliferation of nuclear explosive devices or of the direct capability to manufacture or otherwise acquire such devices poses a grave threat to the security interests of the United States and to continued international progress toward world peace and development.

Experience suggests that past approaches to containing nuclear spread have been too narrow. The Non-Proliferation Treaty and IAEA's safeguards and onsite inspection as well as supplier export controls are all to the good, but alone they cannot be effective.

Until nations in various regions of the world can feel less insecure, the threat will continue in spite of national and international control efforts. And even then, the threat will remain if the present nuclear weapons nations are not seen to be moving toward disarmament.

The Non-Proliferation Treaty which has been in effect about 11 years was built on a bargain. Many nations agreed to abstain from nuclear weapons if a few agreed to get on with ridding themselves of their weapons. Except for the ABM Treaty of 1972, the record of performance on this score has not been good. Several treaties remain unratified, a comprehensive nuclear test ban is held up, Salt II appears to be abandoned.

Our appetite for further arms control seems less than hearty. When and if we get on with arms control, if not disarmament, our proliferation stance will be substantially strengthened.

I trust that as we go about our programs to rearm, we will keep in mind their proliferation implications. We are faced here with a sharp dilemma for American security policy. As we increase our nuclear forces we may well be increasing the difficulty of keeping nuclear weapons out of the hands of other countries. Our example

is a more potent lever to control spread than even safeguards and export controls.

Another dilemma—as we consider the dangers of spreading civil nuclear technology around the world, we should keep in mind that under article IV of the Non-Proliferation Treaty the United States and other suppliers have promised those nations that abstain from nuclear weapons full access to peaceful nuclear technology.

It should be recognized that any state which develops a civil nuclear capability will have some sort of option to mount a military program.

It may be of historical interest that the Soviet leadership recognized this from the start of the atoms for peace program.

Molotov, shortly after President Eisenhower's 1953 United Nations address, asked John Foster Dulles what the Americans had in mind in opening the way for stockpiles of nuclear bomb material all around the world.

As we properly criticize the U.S.S.R. for its international misconduct, it may also be worth noting that the Soviets have even stricter nuclear export controls than the United States and in recent years have been cooperative in trying to control the proliferation problem.

We all know that international onsite inspection of civil nuclear facilities is imperfect and can be improved. The United States is the leading supporter of measures to this end. But it is a unique breakthrough in international relations when more than 100 nations agree to submit their facilities to inspection from abroad and we should take care that those nations remain convinced that their greater security lies in the multilateral arrangements than in going it alone.

I think that such inspection should be looked to less as complete insurance against facilities' misuse for military purposes and more as a way for nations to demonstrate to their neighbors that their facilities have no military purposes.

If a nation wants weapons there are easier ways to go about it than through misuse of declared civil facilities.

On that score, Mr. Chairman, may I just say here I heard some things this morning about the IAEA inspection system. Those don't jibe with my recollection as to how it works. For instance, inspectors do check facilities. They do check material. They don't just limit themselves to the accounting.

Granted, they can only check on declared facilities but they don't just look at records.

On the subject of the veto, that was criticized, but I would point out the United States, by treaty, has agreed to have its own facilities subject to safeguards.

I hope some day Israel will join the NPT. I suspect Israel would like to have a veto against the Libyans coming in and inspecting their facilities. When we were negotiating these arrangements, the fact that a nation could veto nationals from other countries that it didn't like, was an important consideration in getting them to agree to accept safeguards. I would say let's not knock the veto.

And may I say that poormouthing of IAEA safeguards by a non-member of the NPT seems to compound the weakening of the whole NPT/IAEA structure which is the inevitable consequence of the Baghdad bombardment.

Incidentally, I understand that IAEA safeguards are, in fact, accepted by Israel in the case of a small research reactor supplied by the United States. Is it too much to hope that in time they will be applied also to the balance of Israel's nuclear program?

Still another sharp dilemma is the example we give in our relations with allies who are potential if not actual proliferators. On page 115 of the recent GAO report to the Congress it is stated:

. . . Pakistani attempts to acquire reprocessing and enriching capabilities conflict with the thrust of the U.S. policy.

At page 117 GAO states:

The general consensus within the U.S. Government is that Pakistan is pursuing reprocessing and enrichment so as to be able to match India's 1974 explosion. (There are estimates that Pakistan may be able to conduct an initial nuclear test within a year or two.)

President Reagan recently declined to answer a press conference question as to whether any assurances about the peaceful nature of this program had been sought in connection with recent U.S. moves to make large new aid commitments to Pakistan.

I must say, nothing I heard this morning indicated to me that any such assurances were received.

The GAO Report also states:

. . . according to the Executive Branch, Israel operates an unsafeguarded nuclear facility believed capable of producing 6 kilograms of plutonium a year.

Recently a high U.S. Government official declined to comment about the nature of this program.

The greatest difficulty in negotiating the Non-Proliferation Treaty of 1970 was that it involved discrimination between states which possessed nuclear weapons before 1967 and the other prospective parties to the treaty.

This discrimination is now used by a number of important countries as their rationale for not becoming members of the NPT and fully cooperating with the international regimes. But there is beginning to be an appearance of three classes of nations, (a) the nuclear weapons power; (b) the friends of the United States who have a weapons program or at least a nuclear weapon potential; and (c) the rest. Under such circumstances it seems that all of the skill with which domestic legislation is drafted concerning nuclear trade and all the pressure which we can bring on other supplying nations to follow our control arrangements will not be sufficient. This trend toward double discrimination marks a serious deterioration in the structure of the international regime of which the United States has been the leader since the "Atoms for Peace" concept of 1953.

Well, what can be done about it? I repeat that it should be recognized that proliferation will continue as long as great insecurities exist in various regions of the world. Export controls and safeguards are necessary, yes, but they are not sufficient to deter or prevent determined nations from resorting to the development of nuclear weapons if they believe their vital security interests so require.

We must continue to press nonmember countries to join the NPT. Each holdout, having some technical competence, is an anomaly in a system which, to be most effective, should be universal. Who knows, perhaps France under its new leadership will take a more constructive attitude toward membership.

I wonder if we have taken seriously enough the good example that Latin America is giving in the Treaty of Tlatelolco which already has wide coverage. It seems a reasonable prospect that before long all of the nations of Latin America will be in that nuclear-free zone. Egypt and Israel and Pakistan have recently made proposals for nuclear-free zones but have they really worked at all on the problems of negotiating the necessary implementing arrangements? Have we given them any support in trying to realize these very difficult concepts? Has any thought been given to whether offering Israel a firm nuclear umbrella guarantee might lead to a more secure regional situation than that presented by present prospects?

I was not directly involved in the Middle East negotiations but when during the Camp David process I urged that some nuclear provisions be considered, I was told that that would overload an already full negotiating agenda. But after the recent episode it is difficult for me to foresee any lasting Middle East settlement which does not contain provisions for control of nuclear weapons.

Senator PERCY. Ambassador Smith, I will have to ask you to suspend your testimony for a moment until Senator Cohen returns. We have only 4 minutes left on this vote, and I will have to go down and make it. As soon as he comes back, we will resume. Then Mr. Schelling and Mr. Yager will follow.

[Brief recess.]

Senator COHEN [presiding]. The committee will come to order.

Ambassador Smith, it is my understanding that you nearly completed your opening testimony, and we will complete the testimony from all the members of the panel and then begin questions at that time.

If you would proceed?

Mr. SMITH. I wonder, Mr. Chairman, if we fully realize what a great instrument for nonproliferation the North Atlantic Alliance is. The same could perhaps have evolved from the Camp David accords.

These are examples I am citing of ways to get at the political aspect of this problem.

Post Baghdad, we can see more clearly that the nonproliferation problem contains within it a nonpreemption problem—one that is well beyond the reach of U.S. statutory remedies. Should we be thinking of how to obtain timely warning in future cases? Was there an intelligence failure here? Should some sort of international convention be considered respecting the inviolability of civil nuclear facilities in peace as well as in war?

May we hope that the recent event will come to be regarded in whatever time is left to world civilization as a turning point when the nations decided really to get on with control of existing and prospective nuclear arms, and not to continue the present drift toward destruction during which other security interests and methods seem to be more important and useful than arms control? I hardly need say that such prescription applies not just to proliferation questions but to questions involving relations between the United States and the U.S.S.R.

I have a passage here on the question of congressional participation in this matter. In view of the time, unless you insist, I would skip it.

In conclusion, I think we should proceed along three fronts. First, by setting a better example of self control and in working harder for

superpower arms control agreements to honor our NPT treaty commitment.

Second, by improving controls on nuclear technology and equipment, both national and multinational—for example, persuading all suppliers to condition their nuclear exports on full scope safeguards.

Third, by greater support for international security arrangements aimed at reducing the insecurities which provide motivations for nations to go for nuclear weapons.

We should learn some lessons from this defeat, and, taking to heart the ominous language of the NNPA quoted at the start, get on with the painful measures which the situation calls for. If we do not, the world will likely see an escalation of preemption and proliferation.

Thank you, Mr. Chairman.

Senator COHEN. Thank you very much, Ambassador Smith.

Mr. Schelling, you have had a very long position of interest. You have written extensively on energy issues, so you have an unusual ability to help us put the proliferation question in the broadest possible perspective and the committee looks forward to your testimony.

Mr. SCHELLING. Thank you, Senator Cohen.

I submitted a longer statement to the committee staff, but I brought a summary I would like to read.

That Israel launched a military attack against the Iraqi reactor is deeply troubling. That Iraq could have used the reactor to produce a few nuclear weapons and may have been intending to do so is even more troubling. Most troubling of all is that no one has a good suggestion for what might have been done, had the reactor not been destroyed, to keep Iraq from acquiring nuclear weapons—if that appeared to be Iraq's intent—or any other country with the capability and evident intent.

There does not seem to be serious doubt that Iraq could have produced some nuclear weapons. There is dispute about how long it might have taken; a few bombs within a few years seems a summary of most authoritative views. There is dispute about whether it could have been done surreptitiously, in the presence of French technicians and IAEA inspectors; but there is no legitimate authority to intervene if Iraq is seen to be preparing weapons, or expels the inspectors.

Israel, properly or improperly, has made the problem disappear briefly in Iraq. I don't think we know yet whether Israel's precedent will put a chill on other countries' nuclear-weapon aspirations. We must expect that in the 1980's other countries will be tempted, as Iraq may have been tempted, to acquire a weapons capability, or will be suspected of doing so, and some countries will be tempted, as Israel was tempted, to take preventive measures. I include the United States among the countries that may possibly be tempted to take preventive measures.

Public discussion has been so much preoccupied with what the Iraqis were up to and what they might have got away with, and whether Israel's reaction was prudent, premature, or downright self-defeating, that in these very few weeks there has been little speculation on the state to affairs once Iraq might have had a weapon or two and what use a country like Iraq could make of something as horrendous and unwieldy as a nuclear bomb, or a few of them.

It has been proposed that Iraq could not have used such weapons on Israel without fear of retaliation in kind, and would not be so insane;

and it has been proposed the Government of Iraq is just insane enough to do it. These two possibilities are hardly exhaustive, and they bear very little on the likely deliberations of Government leaders who have a year or two to contemplate possession of a small number of nuclear weapons. I see a number of ominous possibilities, and the dangers are not confined to Israel.

Let me first point out that although Israel may be the only target country at which Iraq could aim some kind of missile with a nuclear warhead, Israel may also be, paradoxically, the only Western nation into which a nuclear weapon could not be smuggled with fair confidence. A weapon can be pre-positioned at leisure. It can finish its journey by boat, and for large urban targets wouldn't need to be unloaded. And if you believe that the FBI could find a nuclear weapon that has been secreted into Baltimore Harbor, I invite you to contemplate the conclusions we should have to draw, and the public reaction, if it actually did.

Why would Iraq or any Arab country want to threaten the United States with nuclear weapons? I wish I could think of no good answer. But in 1973 Israel survived and conquered because of timely American delivery of ammunition and equipment. A sufficient motive behind an Iraqi weapon program, or a weapon program in any country committed to Israel's defeat in the next war, could be the deterrence of U.S. wartime supply or participation in combat. More than sufficient, I should think. And it would entail little risk of Israeli nuclear reprisal.

Actually, the bomb in Baltimore could be left to our imagination. If a nuclear weapon were actually used or threatened by a nation like Iraq I would expect it to be against a military target.

An example from recent history might be the refueling site in the Azores that the United States used to get the ammunition and equipment to Israel in 1973. To be effective, the threat of nuclear attack on a military transport refueling station needed only to deter either the American Government or the Portuguese Government, or even the local population in the Azores. I do not think delivering the weapon would have been impossible if it were delivered—for later detonation—before the threat was made. Diverting U.S. aircraft to an alternative refueling site would have been public acknowledgement that the threat was real.

Had a weapon been exploded it would have been of small civilian damage compared with Hiroshima. It would not have invited nuclear retaliation on the population of Iraq. It would have been a terrifying announcement that the bomb could have been in Norfolk and the next one might be.

Winston Churchill was concerned that the German bombing of London might cause disorderly evacuation. Those were pretty small bombs compared with what Iraq, in the aftermath of my Azores nightmare, might claim to have smuggled into some major seaport of the Western world. A plausible threat of a pre-positioned nuclear weapon, especially a threat made plausible by a detonation somewhere, can intimidate populations directly and not only through their governments.

Let me invite you to a second nightmare. Again I take my example from the recent past, and suppose that the huge nuclear power program that the shah planned for Iran had led to a few nuclear

weapons or some weapons-grade plutonium and that the turmoil that began in 1978 happened instead after some nuclear weapons or material had been accumulated.

The shah or someone loyal to him might have taken weapons or material out of the country, or sent it out in advance, to wage a comeback or to defend wealth and personal security in exile. Someone transiently loyal to the shah might have had access and removed them. They might have been entrusted for safekeeping to somebody abroad. Loyal troops without access to the weapons might have taken steps to obtain them to keep them out of dangerous hands; disloyal troops might have sought to capture weapons for political use or, also, to keep them out of more dangerous hands.

If they had been inherited by the Ayatollah, we do not know to whom the weapons or the material might have been entrusted. The President of Iran disappeared last week: who would have had the plutonium? There are other interested parties undoubtedly willing to consider commando tactics to capture the dangerous material either because of its value in the right hands or because of its value in the wrong hands. Israel, the U.S.S.R., and the United States come to mind, as does the PLO. And as with the jewelry, the cash, or the negotiable assets that the shah may have taken with him, or that others who fled may have taken, it might never have been known how much nuclear material there had been and how much was missing.

I do not single out Arab countries. The French paratroopers and the secret army organization that in 1958 challenged the government of Paris might, had nuclear weapons been in the hands of French forces in Algeria at the time, have made threatening use of such weapons or arranged the weapons' disappearance for some later occasion. Three other NATO countries besides France have undergone changes in government by violence or the threat of violence. Just imagine that there had been a few 10's of kilograms of plutonium in Lebanon. Who would have it now?

This is a nightmare that I would like to invite the leaders of Pakistan, Iraq, and even Israel to share. The main use of military forces around the world seems to be to overthrow their own government or to fight other military forces within the same country—air force against navy, officers against enlisted, East against West Pakistan, Moslem against Christian, Royalist against anti-Royalist. There is just a chance, maybe only a prayer, that some heads of government might come to appreciate the dangers to their own country and to themselves of acquiring nuclear weapons.

Aside from not wanting to become a target for nuclear blackmail and nuclear attack by joining the ranks of those who have declared themselves nuclear, some governments might possibly recognize how inherently divisive a small nuclear capability could be.

What should a wise head of government respond if offered immediate delivery of a few nuclear weapons, free of charge? I think he or she should respond, "Not yet—let me think where to put them." Does he trust the loyalty and confidence of senior military officers enough to put weapons in their hands? Can he afford to display distrust in keeping them from the military? Must he provide them to the competing branches of military service? Could he, as Secretary McNamara could not, get enthusiastic military acquiescence in electronically safeguarded Presidential control? Could he let an

army be surrounded, immobilized, even captured, without authorizing some use of these supposedly awesome weapons? Could he be coerced by his generals into using them? And if he withheld the weapons, wouldn't he regret having had them? I wish there were more evidence that some heads of government shared my misgivings on their behalf.

I doubt whether there is much the United States can do to increase the alarm that any heads of nonnuclear governments might feel at the prospect of getting close to having nuclear weapons. We are a too interested party. It must, furthermore, be exceedingly difficult to get a president, a defense minister, a minister for nuclear power, and a chief of staff of armed forces to sit around a table together and acknowledge that shortly they may be on opposite sides of a coup or civil war, or some of them desperately evacuating, and that they would be wise not to encumber themselves with as competitive a prize as a nuclear arsenal.

Senator COHEN. Mr. Schelling, I think you have omitted one reference to the horrors and nightmares you have noted. I think the new novelist David Wise wrote a book recently called "Spectrum," in which he carried it further, a part of our intelligence agency had nuclear weaponry pointed at the White House. That may be another horror you might one day experience as well.

Mr. SCHELLING. There are some limits on proper testimony.

Senator COHEN. Mr. Yager, you have written extensively on the subject of nuclear proliferation, particularly about international cooperation on nuclear energy issues and your work at the Brookings Institution has also involved the nonproliferation aspects of American foreign policy.

The committee looks forward to your testimony.

Mr. YAGER. Thank you, Senator Cohen.

I will summarize my statement.

Senator COHEN. Your full statement will be made a part of the record, Mr. Yager, at the conclusion of your testimony.

Mr. YAGER. On the Israeli attack on the Iraqi reactor, I find myself somewhat of an optimist. I can see the dangers to the present nonproliferation regime, but I don't think these dangers will prove to be very serious. In fact, I think the main unintended effect of the raid will be to underline some problems that the world should have been paying more attention to all along.

First of all, the Middle East is a rather special area so far as nuclear technology is concerned. Even peaceful nuclear technology cannot be inserted into that area without some risks of destabilization. I would think that in addition to the normal safeguards, it would be desirable in the case of the Middle East to establish the rule that spent nuclear fuel will always be removed from the area.

The second more obvious point is that, although a confrontation involving nuclear weapons between the Israelis and the Arabs may not be imminent, it could happen sometime in the future and something should be done to forestall it now.

The Israelis have adopted what I think is the right approach in calling for a nuclear-free zone. The question has not been answered as to how far they would go in giving specific content to this idea.

On the broader international scene, there are a number of things on the international agenda that I think require attention.

In a way, these are left over from the administration my friend Ambassador Smith served. I am not criticizing you, Ambassador Smith.

I see five problems. One is controlling plutonium. Second is channeling the development of reprocessing capacity. Third is providing alternatives to the national storage of spent fuel. Fourth is increasing the assurance of nuclear fuel supply, and fifth is building a consensus on the rules of trade in sensitive nuclear materials, equipment, and technology.

The most important of these problems, I believe, is the first one, controlling separated plutonium. As you know, the International Atomic Energy Agency already has authority to accept deposits of excess plutonium, and the IAEA has had a group of experts working for about 2 years on a plan for what is now called an international plutonium storage system.

Unfortunately, these discussions have not seemed to reach what I would call the political level and the prospect of early agreement, I gather from people closer to the negotiations, does not look very bright.

I think here is a case where some U.S. leadership may be needed.

The essentials of the international plutonium storage system are really quite clear. All excessive plutonium should be deposited. There should be explicit rules on release.

Plutonium should not be released for purposes other than early use in peaceful research or in a nuclear power reactor.

The channeling of fuel processing capacity is, if anything, more difficult than establishing effective controls over separated plutonium. Ideally, you might say, well, let's not have any reprocessing outside nuclear weapon states. That is politically not feasible.

I think the best alternative is to build only large new reprocessing plants, plants that can have the advantage of economies of scale. If there are large plants, there will be fewer of them, and they will tend to be in countries that at this point in history either have nuclear weapons or have very few incentives to acquire them.

The increasing inventories of spent fuel are potentially a problem and they could provide incentives to build small reprocessing plants, they could also create incentives to develop a nuclear weapons program.

In this case, I am not optimistic about anything approaching a complete solution. The alternatives to national storage are storage by the existing large reprocessors, return to the original fuel supplying countries, and construction of regional nuclear fuel storage facilities.

Realistically, I don't think all of these alternatives together will deal with the amounts of spent fuel that will arise in the next decade or so, but they still should be pursued because in holding down the size of national inventories of spent fuel we can, to some extent, reduce incentives for actions we regard as dangerous.

The fourth item I mentioned is increasing the assurance of nuclear fuel supply. As the committee's questioning of the prior witness indicates, this is a very tricky question. I think this is a somewhat less urgent problem than it was thought to be a few years ago, but it still is given some priority by some of the developing countries.

They feel that if they are going to have to accept safeguards, they should get reliable assurance of nuclear supplies in return.

I would not advocate anything as ambitious as the nuclear fuel bank, but I think we should consider a system of cross-guarantees among fuel supplying countries.

Finally, there is the longer run problem of building a consensus on the rules of trade in sensitive nuclear materials, equipment and technology. I would not give up the nuclear suppliers group. I would however, continue to operate it with a very low profile.

What we really want is a consensus that goes beyond the suppliers.

Eventually we might hope to have the understanding that the countries that observe certain desirable rules in the nuclear energy field will have assurance of supply from the suppliers. I don't see this coming about next year, maybe not for several years after that, but it is a goal that we should have in mind as we deal with the various concrete problems in the nuclear energy field.

Senator COHEN. Thank you very much, Mr. Yager.

Ambassador Smith, I think you indicate in your statement that in your judgment unless we move for an overall policy toward world disarmament there is little incentive for nonproliferation. Is that the underlying theme that you wish to stress to this committee?

Mr. SMITH. No, sir, I would like to stress to this committee that under article VI of the Non-Proliferation Treaty, the nuclear weapons states made a commitment to get on with nuclear control and the word "disarmament" also appears.

Having not ratified existing negotiated arms control agreements, we appear not to be carrying out our NPT treaty commitment. And when one side doesn't keep its treaty commitments, there is a temptation for the other side to be less than enthusiastic about keeping their own.

Senator COHEN. I will go one step further in asking about our policy with respect to China.

I recall speaking to Deng Xiaoping a few years ago and asked him whether China would consider ceasing atmospheric testing. The Chinese response has been that "We have a lot of catching up to do. The United States has concluded or conducted its atmospheric tests, as has the Soviet Union. It would be unreasonable for you to insist that we undertake at this very preliminary state cessation of atmospheric testing." In view of that policy and in view of our own administration's policy of transferring technology, at least weapons to China, does that, in your judgment, contribute to the goal of nonproliferation or detract from it?

Mr. SMITH. I think if you had a comprehensive plan that included China, there would be very substantial advance toward the nonproliferation regime that is much tighter than the present. If none of these proliferators could protest, presumably they would have a harder time with the comprehensive test ban because it would not be discriminatory like the NPT. One of the problems of the NPT is it has weapons power nations and nonweapons nations. Countries would find it harder not to join the nonproliferation ban, it would have a dampening effect on development of weapons programs throughout the world.

Senator COHEN. You criticize the current administration's "no comment" approach to Pakistan. The United States completed a \$4 billion military and economic aid package for Pakistan. On the other hand, the United States has pressured Pakistan to limit its nuclear weapons development program.

I know you have faced these kinds of dilemmas in the past. I am wondering what is your own judgment of this policy? Is that not consistent with the basic thrust of your testimony that we have been, perhaps, too restrictive in trying to deny certain technology? Perhaps

if we are less restrictive in our denial but more restrictive in our control attempts, we will have a better chance of controlling proliferation.

Mr. SMITH. The thrust of my testimony was that we appear to be making exceptions in our policy, that we are making exceptions for our friends who are potential proliferators—Pakistan, Israel. When countries around the world see us aiding countries that we believe are potential proliferators, they question the whole good faith of our attitude toward proliferation.

Senator COHEN. Do you think as a realistic matter that Israel would ever accept a state of being placed under any U.S. nuclear umbrella for its protection?

Mr. SMITH. I don't know that we have ever really pressed them on the subject or whether the American Government would even be willing to do that.

The days of making new security assurances may be behind us, but it is something I think we ought to think about as an alternative to what looks to be a catastrophe building up over the long term.

Either Israel accepts to go back to a nonweapons posture or the Arabs are going to go forward toward a weapons posture. I don't see in the long term any alternative to that.

Senator COHEN. I am told we have to shorten up the questions so we can complete this panel and have one additional panel.

I have a couple of questions for Professor Schelling.

As I understand your testimony, we have to persuade these nations who are now seeking nuclear weapons that it is not in their security interest to do so, that it is really an invitation to the kind of attack the Israelis launched against Iraq; is that correct?

Mr. SCHELLING. One of the ways to persuade them is that they do invite surprise attack by their neighbors and by others.

Senator COHEN. I won't expand the scope of this particular hearing, but I suppose a similar argument can be made with respect to AWACS or enhanced F-15's. We are also talking about making a rather significant arms transfer to Saudi Arabia. One of the arguments that has been raised in opposition to such a transfer is that the mere possession of that capability will in turn invite a preemptive strike by the Israelis. I am assuming that is the logic of your current statement and that you have magnified it in accordance with the kind of danger you are talking about with nuclear weapons.

Mr. SCHELLING. I don't think it would be preempted because the Saudis would not be in a position to launch a sudden surprise attack on Israel. I would expect the Saudis merely to join their Air Force to a concerted attack by Syria, Jordan, or whoever else. That surprise attack in Iraq that was invited was the kind that, had that reactor been in Iran, might have been invited before now. If the shah had had that reactor, and the Ayatollah had inherited it, I think the reactor would have been destroyed; and if it had been by unmarked airplanes, there would be several potential perpetrators with sufficient motives to explain it and to indeed to have collaborated on it.

The Iraqi reactor was government property in a sovereign nation, although it is a sovereign nation that is declared to be at war with the country that launched the attack. There are circumstances, like the hostage taking in Iran, in which diplomatic relations might be broken

and even war declared if the country were thought to be preparing a nuclear capability; and if some group, not a sovereign nation, got hold of plutonium or weapons—and I have tried to explain how such a group could—I think our interest in combating terrorism, even if necessary by undiplomatic means, would immediately be invited.

So the attack on Iraq is just short of a line where I think we would have to be considering much more carefully under what circumstances extra-legal means would have to be used or threatened to bolster and augment the legitimate diplomatic regime.

It is much the same as the domestic problem. At home, in order to fight terrorism, assassination and other exceedingly subversive activities, we badly want a regime of respect for law and order; and that requires that those who enforce the law scrupulously observe constitutional rights and the law itself. And yet the temptation is to use extra-legal means. I think that is close to what we shall be facing in the international arena, the enormous importance of not undermining the Non-Proliferation Treaty regime by treating it as something so flimsy that we must always be preparing for its breakdown, and yet always being aware of the fact it will fail somewhere.

Senator COHEN. Let me ask you, let's suppose in the future we have reason to believe a nation with hostile designs on the United States is close to developing a nuclear capability. No. 1, how far should we go in preventing this from taking place and of what use would present international safeguards be, in your judgment?

Mr. SCHELLING. The present international safeguards are probably a useful early warning device because one of the first steps a nation might take if it is going to prepare nuclear weapons would be either to abrogate the treaty, if it were a member of the treaty, or abrogate any nontreaty safeguard if it had them or temporize in admission of inspectors to the country or behave in ways that would give away some indication of potential intent.

There is nothing in the safeguards, as I believe Senator Glenn was pointing out, that goes beyond an information system and a little more than that, a symbolic and legal system that requires people to take steps of diplomatic significance in order to subvert the information system.

At some stage, we have to recognize that the issue is not always going to be whether a country actually has a bomb. It is whether it has got to the point where all that it needs to produce bombs is within its own territory under government control. That is the point of no return. At that point, in effect, they have the bomb. The only question is how many days, weeks or months, assembling them, arming the warhead, or prepositioning it somewhere.

Senator COHEN. In your statement, you indicated that you would include the United States as a country that might be forced to take preemptive action. What did you mean by that?

Mr. SCHELLING. I meant that ever since 1962, when the President of the United States threatened instant potential preemptive action on a country that appeared to be acquiring a nuclear capability, ever since then we have had to face the possibility that if we were about to be the target of a nuclear attack either by a Pearl Harbor-type military attack or by terrorists or subversive activity of some sort, we couldn't afford to let weapons get prepositioned where we could neither find them nor prevent them from being detonated.

Senator COHEN. Let me ask you in a broader context, about a situation in which we are, in fact, targeted by the Soviet Union. There are discussions that have taken place that will continue to take place as to whether we would consider launching on warning, a launch under attack or would you wait until, in fact, your country was attacked by the Soviet Union. You are not suggesting by your statement that we include the United States as a country that might be forced to take preemptive action in that particular category, are you?

Mr. SCHELLING. I distinguish. With the Soviet Union we go to great lengths to make sure they don't want to attack us with nuclear weapons. We are spending tens of billions of dollars, we have superb equipment, thousands of warheads all to persuade the Soviet Union that if they attack us they are in deep trouble. What I am talking about now is something different. It is a capacity that may be difficult to deter because we don't know who will be exercising it against us and probably if we attempt to destroy it in advance, we would not use nuclear weapons against it.

The Israeli attack did not need nuclear weapons. The Israeli attack would not have been undertaken if it needed nuclear weapons. What I am talking about essentially is preemptive nonnuclear activity against either nations that we are afraid cannot be deterred, and one might have thought 1 year ago that Iran was in that situation, or against the possessors of nuclear weapons that we cannot identify with a nation that has cities to threaten.

I would point out the terror that they could cause here or in Western Europe or Japan, by demonstrating that they have a weapon and by demonstrating they could have one where it could do harm. They can make use of it, terrorist use of it, without necessarily detonating it. I think we have to recognize that maybe the most successful use of nuclear weapons by terrorist, nations or organizations, will be like the most successful use of nuclear weapons by the United States or the U.S.S.R.; namely, making someone fearful doing something.

I think we are very susceptible to being deterred and I think that may be precisely why it is difficult for us to give Israel any assurance that we can guarantee their security in the long run as long as any of their enemies have a nuclear weapon potential.

Senator COHEN. Mr. Yager, I have one question, and then I will yield to Senator Glenn. You indicate that the ideal is having reprocessing plants located in the nations which already have nuclear weapons. What would you suggest we do about small-scale technology, so-called small hot cells that were in Iran and that are currently held by a number of nations, including the Italians, among others? What do we do in that situation?

Mr. YAGER. I think that is a proper object of concern for nuclear suppliers.

Senator COHEN. Why don't you turn to the microphone?

Mr. YAGER. I was saying, I think that it is appropriate, to try to limit the threat of that kind of technology. I wouldn't be completely optimistic though, because as I understand it, there isn't anything mysterious about a hot cell. There are probably countries that don't have them, that don't have nuclear weapons that could build their own. It may be this is going to be a continuing problem and that we will have to work on incentives as Mr. Buckley suggested.

Senator COHEN. Thank you, Mr. Yager. Senator Glenn?

Senator GLENN. Thank you, Mr. Chairman.

I would like to ask for your comments on whether you gentlemen would agree or disagree with the proposal I sent to the President that as a stopgap measure now, we have the nuclear suppliers get together to try to set some new rules, get some new agreement on what technology, equipment, and materials should be exported to different areas of the world. Can't we come to some new agreement on that as a stopgap while we get some longer range considerations organized for NPT and IAEA?

Would you favor such a meeting and if not, why not? I am curious as to your views on this? Ambassador Smith?

Mr. SMITH. I would favor anything, Senator, that would tend to make more precise the international understanding of what is permissible and what is not permissible in the export field of technology and equipment. As Joe Yager said, I would be inclined to try to keep any such activity at as low a profile as possible. You will recall, we ran into a tremendous amount of resentment around the world as a cartel ganging up on the developing nations, while you had this NPT Treaty promise to get pretty full access to material and equipment.

Perhaps something like this could be done on a bilateral basis. As you pointed out, there are not all that many potential suppliers. I would prefer to see it done diplomatically, bilaterally, rather than in some multilateral meeting.

Senator GLENN. Mr. Yager, would you favor such a meeting?

Mr. YAGER. I would not favor a meeting as such. I would favor bilateral consultations or consultations in smaller groups. We don't want publicity about the revival of the nuclear suppliers' group.

We want to lower the visibility of collusion among suppliers and try to broaden the discussion of the problem to include importers. I am not disagreeing with what you want to do. I am urging that it be done with as low as possible visibility. I agree with the urgency of the consultations.

Senator GLENN. Mr. Schelling?

Mr. SCHELLING. First, there is no question but that this recent dreadful event is due to lack of adequate discipline among suppliers. Second, I don't care what it looks like to the nonnuclear countries if suppliers get together. I think many of them are eager for the suppliers to get together and prevent the shipment of highly enriched uranium and reprocessing facilities, as much against it as we are. My only fear is if we went into a suppliers meeting unprepared, not knowing what to expect, leaning on a brand new French Government that may be in the position of thinking it has been accused of something that led to the convening of this and supposed to confess moral turpitude and mend its ways, that might not work.

I would prefer, in the event our new President plans to go ahead with semiannual summit meetings, putting it on the agenda of the summit to demonstrate how seriously it is being taken, but not to make it look like all the formality of a suppliers' cartel.

If, having thought through what we would try to get and the likelihood we would get it, there are prospects for tightening up things on the supplier side, I think that is essential because that is where the leak was.

Senator GLENN. I would agree we should have our own ducks in a row before we go to something like this. I would bow to our col-

lective judgment whether to do it on the basis of bilateral diplomacy or do it with a meeting.

I tend to think in the opposite direction of you. Perhaps with world attention being focused on this issue now, we could use public notification that we are calling the group together—even if the meetings are closed—as pressure to help us get some agreement on this matter. This might be the most productive way to approach these discussions. Maybe not. I don't quarrel how we do it. I think it is important we get going now while world attention is focused on this area.

Mr. SCHELLING. I would only be aware, publicity on the other end of the suppliers could come to no results.

Senator GLENN. I think the world has to be aware of what the dangers are here. If a suppliers' conference failed to come to some agreement, then I think it might not hurt to make known to the world which suppliers were the stumbling block causing that failure.

If you have it as a secret bilateral negotiation, you might end up with the cloak of anonymity shielding the most offensive nonagreeing member of the group, whoever that might be.

Ambassador Smith mentioned in his statement or one of his remarks the Soviet Union. I think it is important to point out that proliferation has been largely a Western world problem. It has not been by and large, the fault of the Soviet Union. They have been very responsible as far as shipping, reprocessing, and enriching technology needed for bomb-making capabilities.

Maybe they have an ulterior self-interest in stopping their satellites from gaining bomb capabilities. Or, there may be altruism on their part. This is a problem we face mainly in the Western world.

Ambassador Smith, you made a remark about the IAEA and what it could and could not inspect. Correct me if I am wrong on this, but it is my impression, that IAEA only goes in to inspect material and their inspection of equipment is done only if this is in some way connected with their inspection of material.

That is why I made a point to stress that whatever agreement we can get with other nations should also include inspections of equipment in some way because that is really what built up the potential for bomb-making, whether it is reprocessing or enriching equipment. You would not really have any right to inspect anything at all in the way of reprocessing or enriching equipment until there was some material put in to work with.

That is pretty far down the line. Is that not the way it is done?

Mr. SMITH. My point, was Senator, I didn't want the thought to remain that all the IAEA inspectors did was to do some accounting work. They look—they have television—presumably, it is looking all the time. I am no expert on safeguards, but I am convinced the safeguard system is broader than just an accounting system.

Mr. YAGER. Could I add something on that, Senator?

Senator GLENN. Yes, certainly.

Mr. YAGER. My understanding is that when a country has an agreement with the IAEA under the Non-Proliferation Treaty, all of its nuclear facilities must be subjected to safeguards. I have never heard of the concept that a facility is subject to safeguards only when nuclear materials are put into it. You can have the case where a country does not adhere to the Non-Proliferation Treaty but has accepted safeguards on a single facility.

Senator GLENN. If they accept full-scope safeguards, my understanding is they declare all of their facilities under safeguards, but then, what is checked is really the flow of material to be used in those safeguarded facilities.

Mr. SMITH. As I understand it, excuse me, Senator, there are provisions the agency itself can get in at the design stage and see that the design is such as to admit a better safeguard. I would think it is not just limited to as you suggest. The agency gets in at quite an early stage. Can we ask Mr. Walske? He is an expert on this subject.

Senator GLENN. Sure.

Mr. WALSKE. I can refer to the recent testimony of Herb Kouts before the Senate Foreign Relations Committee. In a much longer statement, he said:

Safeguards are applied on nuclear material, not on the facilities contained. In practice, the application involves the facilities intimately because it is not usually possible to separate their involvement.

Senator GLENN. That is very true, but he makes the point I was making. The materials accounting is what they really go in for. They get through the facilities and obviously see the facilities, so to this extent you can't keep them apart. But there is nothing in an IAEA inspection and I was there during his testimony, there is nothing in an IAEA inspection where they go back and report. "They put a new tube around this reactor somewhere." It is a materials accounting process.

And the equipment they observe and report back about is only incidental. They don't go into inventory, specific places, and equipment where there is no material. In other words, as I understand it and from his testimony the other day before the Foreign Relations Committee, say, I put my facilities in a country under full-scope safeguards. I could have all those facilities there, but until there is material that comes into the country that will be used in those facilities, there is no IAEA inspection required. It could go for years. That is my understanding.

Mr. SMITH. There is an IAEA function in affecting the design of that facility, in certain cases.

Senator GLENN. There is a function there. We are running way short on time. We have another panel. I have another thing I have to go to very shortly so we may want to submit some additional questions here for you gentlemen to respond to, if you would, so we could put them in the record. We have so many areas to go into here. We could have several days' testimony with this panel here.

Senator COHEN. Thank you very much for your testimony this morning.

Senator GLENN. Let me ask one other question. One of you proposed treating the Middle East as a special area? Would you propose removing spent fuel from countries in the region and returning it to the country of origin?

How would you handle Israel's situation? The question has been asked this morning whether Israel has weapons or not: if they don't, they certainly have the capability to have them, that is the world opinion. We can assume Israel has weapons. How would you take care of that situation?

How would you take the existing situation and make the Middle East a weapons-free zone at this point?

Mr. YAGER. A first step is to make the Middle East a special area with respect to the handling of spent fuel. Any new fuel supply arrangements should include the requirement that spent fuel be removed from the area, probably returned to the original supplier.

Senator GLENN. How could you make that work, though, when the other nations know or think they know at least that Israel has their own program and is not accountable to anyone?

Mr. YAGER. This is a case where I think the suppliers can act whether the importers like it or not.

Senator GLENN. I see. This would be on any new contracts?

Mr. YAGER. Any new supply contract. Luckily the Middle East has very few nuclear facilities. We can get onto this problem early.

Senator GLENN. If you gentlemen were U.S. Senators and had an arms package for Pakistan before you, would you ship that arms package without an iron-clad guarantee that they are not going to develop a nuclear explosive capability?

Mr. SMITH. As you remember, Senator, we faced this problem about Pakistan for the last 2 or 3 years. I am glad at this point I am not in the Government. I can say I don't know what the security considerations are that lead to this proposed package.

I would hope you would have a clear understanding that any move toward explosive capability would trigger off a termination of the conventional military and economic aid.

Senator GLENN. But would you wait until the explosion occurred?

Mr. SMITH. If your intelligence is good, you should know some time in advance of that. But the fact that the Pakistanis are going ahead with a program for which they have no apparent economic purpose, would certainly put me on a high degree of alert. Whether it would prevent me from suggesting you not pass this legislation, I am not sure.

Senator GLENN. Has your view of the fuel shipment to India changed any in the light of recent events?

Mr. SMITH. No, sir.

Senator GLENN. We have no guarantees also with India, either.

Senator COHEN. Has the Senator's view changed?

Senator GLENN. Mine is more locked in than ever. What has happened since that fight on the Senate floor has backed up my position on that completely, because India has said they will go ahead and do what they see fit to do with our spent fuel. I am sure I would have been able to carry the day on the Senate floor if they had made that statement before the Senate took action rather than after.

Mr. YAGER. Would you like a second opinion? I agree with you on India. I don't think we are going to buy the good will of Indira Ghandi by a fuel shipment. On the Pakistan question, I don't think I disagree with Ambassador Smith. We have to make clear that, if they have a nuclear explosive test, that is it.

There shouldn't be anything fuzzy about that. In this context, a comprehensive test ban would be useful if it can get at the China problem. The chain goes China, India, Pakistan. If you do something about the China problem, that will ease the India problem.

Mr. SCHELLING. I would agree that a nuclear test causes cessation of everything. But the test isn't all of it. You yourself have remarked that Israel is believed to have, or to be close to having, nuclear weap-

ons. When Pakistan is believed to have or believed to be close to having nuclear weapons, they will already be a dangerous potential nuclear mischiefmaker whether they test or not.

I would go at least as far as you on this. I think it is a most obscene way that the previous administration demonstrated how in a moment of crisis we hadn't really meant the kind of sanctions we had applied.

Senator GLENN. I agree with that. We flunked the first test on NNPA. That is the reason I wrote to the President this year when we had a new administration, asking that the second shipment be held up. As indicated by Mr. Buckley this morning, that decision is apparently being discussed at the present time.

An Islamic bomb in Pakistan is still an Islamic bomb as much as it would have been in Iraq. Maybe there will be an attempt made to take out that effort—I hate to see us wait until the explosion goes off because that puts it on a very different plane than if we were able to prevent an explosion in advance.

I just think we must try to prevent the flow of the equipment as well as the material to these countries by having the nuclear suppliers get together while it is still a fairly small group—and that small monopoly will not last for very long. We have an opportunity to stop that flow while we get the larger group of NPT's or IAEA members together and try to come up with something that will put more teeth in the safeguard system than just the information checking it now. We are very late.

Thank you very much, Mr. Chairman.

Senator PERCY [presiding]. I would like to ask one quick question. Have any of you seen the statement made by the President of Iraq this morning which is apparently a recording of a comment he made to his own cabinet that was then rebroadcast, obviously for public examination? If any of you have any comment on that particular comment he has made and what relationship it has to the position taken by Israel, it would be very much appreciated.

President Hussein of Iraq called on all peace-loving nations of the world to help the Arabs acquire nuclear weapons to balance Israel's nuclear capability. He said it is a rational move for the Arabs to try to acquire a bomb. He described it as a remedy for the existing situation in Israel which he says possesses nuclear bombs. Would any of you like to comment?

Mr. SMITH. The only comment I make is that the language is a little different than the conversation before this committee was. It was cast in terms of helping Iraq. The statement you just read said help the Arab nations.

Senator PERCY. That is right.

Mr. SMITH. I don't know what he means by that. It would be different from helping Iraq.

Senator PERCY. That is why we have asked the State Department to give us their considered judgment when they see the whole statement in context. I just read from this particular article. It is from the Associated Press actually. The whole statement is on page 10. If we could have a statement from you, it would be valuable to this record to have your independent judgment on that. I don't want to put you in a position I didn't put the State Department in, if you would rather withhold comment until after studying the statement you can do so.

Mr. YAGER. I have a brief comment. I think that what the President of Iraq said is a state of fact. There is an imbalance. He underlined a problem that has existed and the world has intended to ignore. There is another way to eliminate the imbalance, with a nuclear free zone in the Middle East.

Senator PERCY. Mr. Schelling?

Mr. SCHELLING. I think this is such a natural public reaction of the head of any country that has had his nuclear facility attacked, that we don't have to take it seriously until there is some evidence that poor Arab countries capable of financing, harboring, or otherwise encouraging a new weapon program are taken seriously.

I would suspect that other poor Arab countries would not, but if they do, then I think whether we like it or not, we will have to begin planning on what we do next when a reactor is constructed that the record shows was advertised in advance as intending to develop nuclear weapons. And it will be interesting to see what the reactions are and how they differ among Arab countries, those that are and those that are not ratifiers of the NPT.

Senator PERCY. Thank you very much indeed. If you want to supplement any of your testimony, we will keep the record open for that purpose. I am very sorry the amendment I had to handle on the floor did not permit me to participate more in this panel.

Senator Cohen was thoughtful in asking some of the questions I had in mind. I had read carefully your statements and very much appreciate them. Thank you.

[The prepared statements of Messrs. Smith, Schelling, and Yager follow:]

Statement of

Gerard Smith

Before

Subcommittee on Energy, Nuclear
Proliferation and Government Processes,
Senate Governmental Affairs Committee

June 24, 1981

I.

Whatever else may fall out from the recent reactor bombing, it should confirm the correctness of President Carter's conviction that nuclear proliferation is a central security threat to the U.S. and the whole world and put forever to rest the foolish notion that the spread of nuclear weapons might somehow be a force for stability.

The Non-Nuclear Proliferation Act of 1979 put it in blunt terms: "The proliferation of nuclear explosive devices or of the direct capability to manufacture or otherwise acquire such devices poses a grave threat to the security interests of the United States and to continued international progress toward world peace and development."

II.

Experience suggests that past approaches to containing nuclear spread have been too narrow. The Non-Proliferation Treaty and IAEA's safeguards and on-site inspection as well as supplier export controls are all to the good, but alone they cannot be effective. Until nations in various regions of the world can feel less insecure, the threat will continue in spite

of national and international control efforts. And even then, the threat will remain if the present nuclear weapons nations are not seen to be moving toward disarmament.

III.

The Non-Proliferation Treaty which has been in effect about 11 years was built on the basis of a bargain. Many nations agreed to abstain from nuclear weapons if a few agreed to get on with ridding themselves of their weapons. Except for the ABM Treaty of 1972, the record of performance on this score has not been good. Several treaties remain unratified, a comprehensive nuclear test ban is held up, SALT II appears to be abandoned. Our appetite for further arms negotiation seem less than hearty. When and if we get on with arms control, if not disarmament, our proliferation stance will be substantially strengthened.

I trust that as we go about our programs to rearm we will keep in mind their proliferation implications. We are faced here with a sharp dilemma for American security policy. As we increase our nuclear forces we may well be increasing the difficulty of keeping nuclear weapons out of the hands of other countries. Our example is a more potent lever to control spread than even safeguards and export controls.

Another dilemma - as we consider the dangers of spreading civil nuclear technology around the world, we should keep in mind

that under Article IV of the Non-Proliferation Treaty the United States and other suppliers have promised those nations that abstain from nuclear weapons full access to peaceful nuclear technology.

It should be recognized that any state which develops a civil nuclear capability will have some sort of option to mount a military program. No amount of export controls, inspection, or treaty promises can prevent that from happening. It may be of historical interest that the Soviet leadership recognized this from the start of the Atoms For Peace program. Molotov shortly after President Eisenhower's 1953 United Nations address asked John Foster Dulles what the Americans had in mind in opening the way for stockpiles of nuclear bomb material all around the world. As we properly criticize the USSR for its international misconduct, it may also be worth noting that the Soviets have even stricter nuclear export controls than the United States and in recent years have been cooperative in trying to control the proliferation problem.

We all know that international on-site inspection of civil nuclear facilities is imperfect and can be improved. The U.S. is the leading supporter of measures to this end. But it is a unique breakthrough in international relations when more than one hundred nations agree to submit their facilities to inspection from abroad and we should take care that those nations remain

convinced that their greater security lies in the multilateral arrangements than in going it alone. I think that such inspection should be looked to less as complete insurance against facilities' misuse for military purposes and more as a way for nations to demonstrate to their neighbors that their facilities have no military purposes. If a nation wants weapons there are easier ways to go about it than through misuse of declared civil facilities.

And may I say here that poormouthing of IAEA Safeguards by a non-member of the NPT seems to compound the weakening of the whole NPT/IAEA structure which is the inevitable consequence of the Baghdad bombardment. Incidentally, I understand that IAEA Safeguards are, in fact, accepted by Israel in the case of a small research reactor supplied by the United States. Is it too much to hope that in time they will be applied also to the balance of Israel's nuclear program?

Still another sharp dilemma is the example we give in our relations with allies who are potential if not actual proliferators. On Page 115 of the recent GAO Report to the Congress it is stated ". . . Pakistani attempts to acquire reprocessing and enriching capabilities conflict with the thrust of the U.S. policy."

At Page 117 GAO states, "The general consensus within the United States Government is that Pakistan is pursuing reprocessing and enrichment so as to be able to match India's

1974 explosion. (There are estimates that Pakistan may be able to conduct an initial nuclear test within a year or two.)" President Reagan recently declined to answer a press conference question as to whether any assurances about the peaceful nature of this program had been sought in connection with U.S. recent moves to make large new aid commitments to Pakistan.

The GAO Report also states ". . . according to the Executive Branch, Israel operates an unsafeguarded nuclear facility believed capable of producing six kilograms of plutonium a year." Recently a high U.S. Government official declined to comment about the nature of this program.

The greatest difficulty in negotiating the Non-Proliferation Treaty of 1970 was that it involved discrimination between states which possessed nuclear weapons before 1967 and the other prospective parties to the Treaty. This discrimination is now used by a number of important countries as their rationale for not becoming members of the NPT and fully cooperating with the international regimes. But there is beginning to be an appearance of three classes of nations: (a) the nuclear weapons nations, (b) the friends of the United States who have a weapons program or at least a nuclear weapon potential, (c) the rest. Under such circumstances it seems that all of the skill with which domestic legislation is drafted concerning nuclear trade and all the pressure which we can bring on other

supplying nations to follow our control arrangements will not be sufficient. This trend toward double discrimination marks a serious deterioration in the structure of the international regime of which the United States has been the leader since the Atoms For Peace concept of 1953.

IV.

Well, what can be done about it? I repeat that it should be recognized that proliferation will continue as long as great insecurities exist in various regions of the world. Export controls and safeguards are necessary, yes, but they are not sufficient to deter or prevent determined nations from resorting to the development of nuclear weapons if they believe their vital security interests so require.

We must continue to press non-member countries to join the NPT. Each holdout, having some technical competence, is an anomaly in a system which, to be most effective, should be universal. Who knows, perhaps France under its new leadership will take a more constructive attitude toward membership.

I wonder if we have taken seriously enough the good example that Latin America is giving in the Treaty of Tlatelolco which already has wide coverage. It seems a reasonable prospect that before long all of the nations of Latin America will be in that nuclear free zone. Egypt and Israel and Pakistan have recently made proposals for nuclear free zones but have they

really worked at all on the problems of negotiating the necessary implementing arrangements? Have we given them any support in trying to realize these very difficult concepts? Has any thought been given to whether offering Israel a firm nuclear umbrella guarantee might lead to a more secure regional situation than that presented by present prospects?

I was not directly involved in the Middle East negotiations but when during the Camp David process I urged that some nuclear provisions be considered I was told that that would overload an already full negotiating agenda. But after the recent episode it is difficult to foresee any lasting Middle East settlement which does not contain provisions for control of nuclear weapons.

I wonder if we fully realize what a great instrument for non-proliferation the North Atlantic Alliance is. The same could perhaps have evolved from the Camp David Accords.

Post Baghdad, we can see more clearly that the non-proliferation problem contains within it a non-preemption problem--one that is well beyond the reach of U.S. statutory remedies. Should we be thinking of how to obtain timely warning in future cases? Was there an intelligence failure here? Should some sort of international convention be considered respecting the inviolability of civil nuclear facilities in peace as well as war?

May we hope that the recent event will come to be regarded in whatever time is left to world civilization as a turning point when the nations decided really to get on with control of existing and prospective nuclear arms, and not to continue the present drift toward destruction during which other security interests and methods seem to be more important and useful than arms control? I hardly need say that such prescription applies not just to proliferation questions but to questions involving relations between the United States and the USSR.

V.

I understand that this Committee would also like us to speak to the matter of Congressional involvement in non-proliferation matters.

Having spent many hours before the former Joint Committee on Atomic Energy, I must admit to a bias in favor of concentration by the Congress of its oversight and other functions in the atomic energy field. I have heard the arguments against going back to that approach and regret that they have carried the day. Perhaps the recent episode will suggest a revival of the joint committee approach.

On matters of substance, I think the Congress should be much better informed on the international security aspects of developments in the peaceful uses of atomic energy. I believe

that there has been over-concentration on just one aspect-- that of export controls. At times I have felt that in our anti-proliferation efforts we have been straining at gnats and swallowing camels. I would hope that the Congress can persuade the Executive Branch that the recent "no comment" approach toward nuclear developments in the Middle East and South Asia is insufficient. For better public understanding of the issues, the Congress might well produce a "White Paper" setting out the facts about the international security aspects of present nuclear programs around the world.

VI.

Conclusion:

As I see it, we should proceed along three fronts:

First by setting a better example of self control and in working harder for superpower arms control agreements to honor our NPT treaty commitment.

Second: By improving controls on nuclear technology and equipment, both national and multinational (e.g. persuading all suppliers to condition their nuclear exports on Full Scope Safeguards).

Third: By greater support for international security arrangements aimed at reducing the insecurities which provide motivations for nations to go for nuclear weapons."

We should learn some lessons from this defeat and, taking to heart the ominous language of the NNPA quoted at the start, get on with the painful measures which the situation calls for. If we do not, the world will likely see an escalation of preemption and proliferation.

#

The Terrorist Use of Nuclear Weapons

Thomas C. Schelling

Sometime in the 1980's an organization that is not a national government may acquire a few nuclear weapons. If not, then in the 1990's. The likelihood will grow as more and more national governments acquire fissionable material from their own weapon programs, their research programs, their reactor-fuel programs or the waste products of their electric power reactors.

By "organization" I mean a political movement, a government in exile, a separatist or secessionist party, a military rebellion, adventurers from the underground or the underworld, or even some group of people merely bent on showing that it can be done. My list is not a definition, just a sample of the possibilities. Two decades of concern about the proliferation of weapons have generated a familiar list of national governments that may have motive and opportunity to possess weapons-grade fissionable material, and some ideas about how they might behave

if they had it and what they might use it for. But there is also a possibility that somebody else may possess the stuff.

Who they might be and how they might acquire it are related questions. While not impossible, it is unlikely that an entity that was not subject to national-government regulation would independently obtain and enrich uranium for use in explosives or produce plutonium as a reactor product and refine it for weapons use. There are undoubtedly corporations technically and financially able to manage it, but not many with both the motive and the opportunity to do it without being apprehended by an adversely interested party. Some access to weapons or a weapon program, or to an authorized nuclear fuel cycle or official research establishment licensed and authorized by some national government, looks currently like the only way to do it. Identifying the opportunities, and who has access to those opportunities, generates the answers to the question, who?

Theft of weapons is an obvious possibility. As far as we know it hasn't happened. Despite the thousands that there are, including the thousands on foreign soil, and the large numbers of people who participate in their custody and maintenance and transport, and despite earlier reports by the General Accounting Office that care in the transport of weapons has not always been of a quality deserving praise, I do not know of even any hint that theft has occurred anywhere in the world. And surely the thief, if there has been a theft, hasn't made public announcement.

Nothing so flatly negative can be said about theft of separated plutonium or enriched uranium. An important difference

between theft of the material and theft of a weapon is that nobody is likely to remove a weapon or a warhead in small pieces. A weapon, if stolen, is likely to be taken whole. Materials in some locations would have to be secreted cumulatively over a protracted period.

Gift is a possibility. There may be things a non-nation organization can accomplish that a national government would prefer not or dare not to try. Surreptitious or anonymous activities by agents of a government we should treat as the national proliferation problem; but weapons entrusted to independent or uncontrolled parties that have some autonomy in what to do with the dangerous things should be counted part of the non-nation risk. And the gift may be extorted; blackmail against a government possessing weapons or weapons material is among the ways of obtaining a "gift." Extortion might be especially pertinent if the recipients knew of a clandestine weapon program, and if they had a capability to hurt the government or the people concerned but would target the nuclear capability elsewhere. In principle we should add the possibility of purchase; in matters of corruption, "bribery and extortion" are so often together that gift, blackmail, and purchase can be thought of as unilateral intentional transfers motivated by various inducements.

Defection of civilian or military officials, or units of national military forces, are an obvious possibility once a national government has weapons, especially weapons officially available for military use. The French paratroopers and the Secret Army Organization that in 1958 challenged the government

-4-

of Paris might, had nuclear weapons been in the hands of French forces in Algeria at the time, have made threatening use of such weapons or arranged the weapons' disappearance for some later occasion. When Batista went into exile from Cuba, or Somoza from Nicaragua, or the Shah from Iran, any official holding of nuclear weapons or the materials from which they might be made could well have accompanied them, or have left the country or gone into hiding with other senior officials. The civil war that has ravaged Lebanon, the war that separated the two parts of Pakistan, the bloody overthrow of Scekarno or the turmoil in Iran starting with the earliest confrontations between officers loyal to the Shah and officers disobeying, suggests the circumstances in which something might have happened to an official arsenal of nuclear weapons. Three other NATO countries besides France--Portugal, Greece and Turkey--have undergone changes in government by violence or the threat of violence in a way that might have led to weapons in "unauthorized hands", either at the time or on a later occasion.

It is worth speculating on the things that might have happened to Iranian nuclear weapons, had the turmoil that began in 1978 and hasn't abated yet broken out a dozen years later, when the Shah's originally planned nuclear power program could have been generating spent nuclear fuel from which plutonium could be reprocessed or weapons fabricated. The Shah or someone loyal to him might have taken weapons or material out of the country (or sent it out in advance) to wage a comeback or to defend wealth and personal security in exile. Someone transiently loyal to

the Shah might have had access and removed them. They might have been entrusted for safekeeping to somebody abroad. Loyal troops without access to weapons might have taken steps to obtain them to keep them out of dangerous hands; disloyal troops might have sought to capture weapons for political use or, also, to keep them out of more dangerous hands. The disintegrated regime presided over by the Ayatollah might have found it as awkward and controversial to have nuclear-weapons material as to have American hostages; and whoever managed to possess the stuff might have claimed authority under the Ayatollah to withhold it from the president or the Prime Minister, without being countermanded by the Ayatollah. Indeed, it isn't clear to whom any such dangerous stuff might have been entrusted by whoever might have been in a position to do the entrusting during the near-anarchy of 1979-80, if it had all happened a decade later in nuclear history.

Additionally there were other interested parties undoubtedly willing to consider commando tactics to pre-empt the stuff, either because of its value in the right hands or because of its value in the wrong hands. Israel, the U.S.S.R., and the United States of America come to mind, as does the P.L.O.. What would have come out of the scramble is a guess that has many answers. And as with the jewelry, the cash, or the negotiable assets that the Shah may have taken with him, or that others who fled may have taken, it might never have been known how much nuclear material there had been and how much was missing. A prudent royal family might have exercised the same concealment with nuclear material as with gold or Panamanian bank accounts.

These different routes by which weapons or material might get out of official hands tend to compound themselves. Whatever the likelihood that, say, the government of Iran would have sold nuclear weapons or given them away, or yielded them to blackmail by the P.L.O., weapons in the hands of militants or of disaffected naval or air forces might be subject to less inertia and less inhibition, or more subject to theft or capture or plain loss in the confusion of escape and evacuation. Whoever had such stuff would be unlikely to hold it or transport it in labeled containers. Just what does one do with a hundred pounds of plutonium when the building is under siege and one is in a hurry to reach the airport, or has to leave town in disguise, or when one doesn't exactly trust the "authorized" official to whom it is supposed to be surrendered under standard operating procedures? This is all just rehearsal now. In ten or fifteen years it may be a live performance.

Getting It All Together

If weapons material is obtained in any of these ways from a nation that has a small or new or clandestine weapons program, or from one that has no weapons program at all, the material is not likely to be obtained in the form of completed assembled bombs or warheads. For reasons of custodial security the weapons might be unassembled. If weapon development is a continuing process a government might not commit scarce material permanently to assembled weapons of obsolescing design. A government unwill-

ing to entrust weapons to its own armed forces might find it expedient, in dealing with senior military officials, to keep its arsenal of finished weapons in the future. A government preferring to keep a weapons option but not to declare, or to leak, a nuclear military capability might reduce the lead time between weapon decision and completed weapon without marrying the fissionable material and the other components except in laboratory rehearsal. So an organization that gets some of the material may still face the task of constructing a portable explosive.

That fact makes strong demands on the organization. It would mean highly qualified scientists and engineers. Some years ago Hans Bethe publicly calculated a minimum of six well-trained people representing just the right specialties. Unless they already possessed weapon designs they would need access to computers and a library. They would need the discipline and loyalty to work in secrecy and in trust. It would take time. Recruiting the team secretly would be difficult; clandestine advertising could give the whole thing away. Mercenaries might not feel easy about leaving no trace behind and participating in an enterprise premised on a readiness for large scale violence, an enterprise that might not much value the welfare of mercenary engineers if secrecy were at stake. If the key people were sympathizers rather than mercenaries they might want to participate in the planning and decisions about what was to be done with the weapons. In sum, it appears to require a group of significant size, high professional quality, and excellent organization and discipline to convert unauthorized or illicitly obtained materials

into a useable weapon.

A consequence is that there is likely to be time for planning what to do with the weapons. There may be several interests involved. There would be time and opportunity to make plans, to be sure not to waste the weapons or the opportunity, to work out the technical and tactical problems of exploiting the weapons once produced. If the material was obtained for an existing emergency there might be urgency in completing a weapon promptly and exploiting it at once, otherwise a major consideration would be that exploiting the weapon early would eliminate secrecy, stimulate countermeasures, close the source of material if it remained open, and use up the unique occasion of "first revelation."

I conclude that an outfit able to pull off the feat will want, and may be able, to do some pretty sophisticated planning. There will be time and motivation to think about how to use this unique capability. They may wait for the right occasion; they may patiently create the right occasion, they may be in no hurry; they could even hope not to need their weapon; and they are likely, having thought long and explored alternatives in detail before embarking on their plan, to be better prepared intellectually than their adversaries.

If they decide to claim possession of a nuclear bomb and, as at Hiroshima, do not wish to deplete their supply by an innocuous demonstration or to risk failure in an open test, they will have to be prepared to be challenged to prove that they have what they said they have. But they will have time, and probably

-9-

the right people, to think about how to authenticate their claim, what technical demonstrations will be feasible, what evidence to present, even what ambassadors to appoint in presenting their claim.

If they need to preposition a few weapons and can best accomplish it before their victims have any inkling of what is up, there will be further reason to postpone revelation, and more time to plan the campaign.

And a campaign is what they are likely to plan, not an episode. Unlike most "terrorist" acts of recent years, the activity initiated by the announcement or demonstration of a nuclear weapon is not likely to culminate in a decisive outcome that terminates the episode. If a weapon were used to coerce, neither the success nor the failure of coercion would necessarily lead to surrender or capture of the weapon. Even explosion of a weapon might not be confidently interpreted as the exhaustion of the arsenal and the end of the threat. Acquisition of a nuclear-weapons capability for an organization, as for a national government, may confer permanent status and create a permanent situation, not just initiate a finite event.

Will They Be Terrorists?

The question is sometimes posed, will terrorists come to acquire nuclear weapons? That question starts a train of thoughts: think of all the different terrorist organizations, from Quebec to Uruguay, Ireland to the Basque country, Rhodesia to Israel.

-10-

Who among them might get hold of weapons material? Who would know how to produce a weapon, or even build an organization technically and institutionally capable of bringing such an enterprise to fruition? Who among them would trust each other enough to want such a thing? Is it likely to be terrorists who do the deed, if indeed the deed is done during the coming decade or two?

That question may not focus on the issue. The interesting question is not whether an organization of the kind that we think of as "terrorist" will get nuclear weapons in pursuit of their goals. It is whether any organization that acquires nuclear weapons can be anything but terrorist in the use of such weapons. Does possession of a nuclear weapon, or a few weapons, necessarily make an organization "terrorist"? Are the weapons themselves so terrorist, in any use that can be made of them, that they make their possessors supreme terrorists, whatever else they may or may not be?

Except for acquiring a weapon just to prove it can be done--a motive that I don't doubt appeals to some, but one that I doubt adequate to accomplish the feat--I find it hard to think of any use that would not be "terrorist". I also find it hard to think of any exploitation of nuclear weapons by a national government, other than one with a sufficient arsenal for battlefield use, that would not be terrorist. Even the language of "mass destruction" in categorizing these weapons suggests intimidation and reprisal rather than battlefield effectiveness.

The concept of "massive retaliation" is terrorist. My dictionary defines terrorism as "...the use of terror, violence, and

-11-

intimidation to achieve an end." And to terrorize is "...to coerce by intimidation or fear." The passive form, known as "deterrence," (using the root of the word "terror") need not connote bloodthirstiness, but there is a 30-year tradition that the appropriate targets for nuclear forces are cities or populations, and that strategic nuclear forces induce caution and moderation in an adversary by threatening the destruction of the enemy "society." I intend nothing derogatory or demeaning about strategic nuclear forces by emphasizing the traditional expectation that their primary use is to deter or to intimidate, to influence behavior, by the threat of enormous civilian damage.

It is worth remembering that on the only occasion of their hostile use nuclear weapons were used in a fashion that one has to consider "terrorist." There was a nation that had a very small capability to produce nuclear bombs. The need was sufficiently urgent that it was decided to go ahead with "revelation" when only two were in hand. The hope was to stun an enemy into surrender, or to create such a tremor that the government itself would change into one disposed to surrender. The possibility of a harmless detonation in an unpopulated place was considered but rejected on grounds the test might fail, possibly through incomprehension of the witnesses, and even technical success would deplete the stockpile by half. The weapons couldn't be "wasted" on a remote battlefield; and even military destruction in the Japanese homeland would be incidental compared with the shock of an anti-population attack. With a modest pretense at military-industrial targeting, the industrial city of Hiroshima was chosen.

-12-

No warning was given that might have allowed interference with the demonstration. And so much was at stake--the possibility of continued warfare and the prospective loss of more millions of lives, mostly Japanese--that the casualties might be justified as the price of persuasively communicating the threat and precluding any militarist refusal to take the threat seriously. When the response to the first bomb was not prompt enough, the second was dropped on Nagasaki, depleting the arsenal altogether. (Whether a third was ready for delivery, the victim government could not know.)

The bombs on Hiroshima and Nagasaki remind us that, from the point of view of those who use the weapons, use favors the right side, and may even be hoped to minimize violence to the enemy.

To make the comparison more contemporary, we can contemplate the use that might be made by a national government that had a few nuclear weapons, "few" meaning single numbers or teens, few not only by comparison with so-called nuclear powers but too few for decisive use on the battlefield. It is generally expected that population threats, verbal or communicated by detonation, would be the obvious role for such weapons, and that even nominally "battlefield" use would be intended mainly for intimidation rather than local target destruction. It is hard to see that a national government with a few such weapons would have any but a "terrorist" mode in which to use them. There are many ways to distinguish a national government from a non-governmental entity, but the "terrorist" quality in any use of nuclear weapons does not seem the way to differentiate.

-13-

And if a government would appear to "descend" to the level of a terrorist organization in exploiting any genuine or pretended nuclear capability, an organization that was not a national government, that possessed or could credibly claim to possess nuclear weapons, might "ascend" to the status of a government. It might seek its own permanence, as a nuclear mini-state even if lacking territory. Or it might claim a territory or seek a homeland, identifying itself as the rightful claimant to legitimate authority in some existing state. Considering the nation-status that is alleged to motivate the nuclear aspirations of existing governments, and the "prestige" that is supposed to go with the fearsome accomplishment of producing or otherwise acquiring nuclear bombs, and recognizing that something as vaguely defined as a Palestine Liberation Movement can achieve diplomatic recognition, it should not tax our imaginations to suppose that an organization with the ability to acquire the wherewithal to produce nuclear weapons and the professional capacity to do so, enjoying the network needed to affiliate the relevant skills and the discipline to pull it off in secrecy, might proceed to set up its own foreign office and dispatch its own ambassadors to the governments with which it proposed to do business.

This idea is supported by the consideration that an organization that could have one bomb could well have more than one. So even violent use of a weapon might not exhaust the campaign. Furthermore, "successful" exploitation of a weapon, for a non-governmental entity as for a national government, would likely achieve its purpose without explosion, without destroying the

-14-

weapon itself. So the organization need not contemplate its own demise, as a nuclear mini-state, in the event of initial success.

Modes of Utilization

It is hard to foretell what mode of exploitation might be adopted by that unspecified organization that comes into possession of nuclear weapons. It is especially hard because the people who would decide the strategy could have had weeks or months or longer to think and argue intensely about what their "nuclear strategy" should be. Most of us have not spent weeks or months attempting to anticipate that exercise. And because we have not identified our specific candidate, we have no vivid image of either its objectives or its limitations to help sharpen our imagination or to screen out the implausible. We can, however, generate a menu of some possibilities with which to acquire some notion of the range of surprises to which we may be subject someday.

Not the most dramatic, but an effective way that a small nuclear-weapon capability might be exploited, would be to announce it. Announce it and do nothing else. Lie still. Announce it non-belligerently. The announcement might require identifying who it was that had it, unless the organization or its affiliation was already well known. Alternatively the information could be allowed to leak; and if there were already conjecture that the organization was acquiring a nuclear capability the "announcement" might take the form of merely not responding negatively (or convincingly) to inquiries. The fact of possession could be inter-

-15-

puted as an implicit threat. But it would not have to be voiced. If the object were to gain attention and status, a believable announcement ought to do the trick. The announcement could of course be secret and limited to a few addressees, perhaps the target governments toward whom the weapons represented an implicit threat, perhaps a friendly government that might or might not welcome the news of such support.

Along with the announcement, open or clandestine, might be some effort to authenticate the claim. We have fictional and journalistic accounts of how this might be done--revealing details of theft or capture that only thieves or captors could know, inviting or kidnapping witnesses for a "show and tell", delivery of a weapon facsimile or a sample of weapons-grade material, open declaration by the distinguished scientists who had designed and assembled the weapons, or of course a "test" detonation. Depending on the risk of interception, the latter could be by surprise, at an unannounced time and place, or by "invitation" or advance tipoff.

An alternative passive, but more dramatic, mode might be to eschew announcement and proceed to demonstration. If the object were to strike a little terror, an anonymous blast might do the trick; and although a multitude of minor terrorist groups might claim authorship in the usual style, the authentic perpetrator should have no difficulty proving his claim when it was time for the real nuclear demonstrator to stand up.

In case it seems that mere announcement, unaccompanied by overt threats and demands, would lack the climactic quality one expects to find associated with a non-nation nuclear capability, it helps to reflect that announcement or, alternatively, leaks

and undenied conjectures, are what one usually expects of a national government. Except for the initial American revelation, mere announcement (or even letting another government do the announcing) has been the custom. Those who believe that Israel has had nuclear weapons, whether in readiness or ready for quick assembly, must believe that "announcement by denial" is a believable tactic. (Whether they believe that Israel made also some explicit but discreet revelations, I don't know.) In any case, there is nothing about "mere" announcement that precludes becoming more explicit later. The way it is done would depend, too, on the manner in which some national governments might, between now and then, have conducted their own revelations or tests or first uses. "We do too," would be an effective way to announce possession if the most likely target government had just announced that it possessed nuclear bombs.

In a more active mode the organization could approach the target government, i.e., the government whose behavior it hoped to influence by formulation of demands. It could do this secretly or openly. There are at least four combinations: open announcement coupled with secret demands, secret display or announcement associated with open demands, or both secret or both open. There might be more than one target government; the "victim" might be different from the "target", the overt threat made against one government with the intent of intimidating another. A Libya that nominally threatened Israel might be most interested in frightening Americans.

The target might be a populace, not a government. Panic,

-17-

evacuation, political pressure on a government or mass civil disobedience or obstruction could be the response either to mere announcement or to a threat aimed obliquely or directly at the population. Winston Churchill was reportedly concerned, at least briefly, that the German bombing of London might cause disorderly evacuation, and those were pretty small bombs.

The most active mode of intimidation would be to detonate a weapon on a live target. Hiroshima represented intimidation: the object was not to eliminate that city, the true "target" being the emperor's palace in Tokyo. A weapon could disable a nation by destroying the center of the capital city; and a weapon or several might be used by surprise on a military installation or troop concentration. But even on a military target, nuclear weapons might be intended more to terrorize a populace or to intimidate a government than just to do what blast and radiation can do. (A nuclear facility might be judged an appropriate target by an organization that wanted the drama of military use but with hearts and minds the targets rather than bodies.) Detonation against some target is evidently more likely if there is a war on.

Not out of the question is the possibility that a weapon would be offered for sale. Whether a dedicated group of scientists and engineers would elect to turn a profit rather than perform diplomatic miracles strains my credulity, but only somewhat; a weapon obtained opportunistically from a military arsenal seems more compatible with mercenary utilization. Putting a weapon up to public auction would be a clever bit of mischief. It might be purchased by someone desiring the weapon, or ransomed by a

-18-

government that could finance preclusive purchase. There might be the usual difficulty with kidnap ransom, namely, of showing up to collect the money or giving one's mailing address; but the father of Patty Hearst was ordered to deliver ransom to a third party--food for the poor--and that strategy, if the owner isn't after the money itself, takes care of half the problem. The other half is credibly surrendering the weapon.

The weapon might even be given to a government that needed it in a military crisis, possibly a reluctant beneficiary, a government that would find it more an embarrassment than an asset but that having the weapon had a potent deterrent whether it wished it or not.

An outside possibility is that an organization acquiring a nuclear weapon would surrender it, with ceremony, not against ransom or on any conditions or concessions. It could be an effective anti-nuclear demonstration. Such a consummation seems incompatible with the deadly serious and dangerous task of designing and constructing a weapon; but a less professional organization that obtained a military weapon by theft or hijacking might be tempted to dramatize disarmament in that fashion. (Or they might announce a contest: now that they have it, what should they do with it?)

Strategies for Terrorist Use

Nuclear weapons are enormous, discrete, unrenewable, and scarce. They are too valuable to waste, or to entrust to any

-19-

but the most reliable operatives. They are out of proportion to most of the things that terrorists demand in response to some finite threat, like something or somebody held hostage. Only recently has a single finite opportunistic terrorist threat--the 50 American embassy officials captured with the embassy itself in Tehran--been parlayed into a quasi-permanent source of intimidation. Assassination of a head of state is an act to compare to a nuclear threat or nuclear test, but assassination doesn't lend itself to a protracted strategy of coercion. Few terrorist incidents of recent decades therefore contain interesting suggestions for the terrorist activity on a nuclear scale.

A characteristic of nuclear weapons, unlike live hostages, occupied buildings, hijacked ships or aircraft or stolen precious objects, is that there is no inherent limitation on how long a nuclear threat can last and no necessity for surrender of the weapon at the end of a successful negotiation. In ancient times hostages were taken in large numbers as security against the good behavior of a tribe or a town or a nation. In recent times, with the ambiguous exception of Iran, terrorist hostages have been dynamically unstable assets, not capable of being held indefinitely in comfort and safety either for captives or captors, with the ultimate mobility and security of the captors depending on release from as well as release of the hostages. We have to look back to the occupied countries of World War II, or eastward to more recent military occupations, to find instances of "steady-state" rather than "episodic" hostages.

An important distinction for the terrorist use of nuclear

weapons, whether by a small nation or organization or by great nations like France, the United States, and the Soviet Union, is between deterrence and compellence. (I apologize for the word "compellence," which I introduced some years ago for this purpose, but not for the distinction, which has been understood since historical times.) By "deterrence" I mean, of course, inducing an adversary or a victim not to do something, to continue not doing something. The word takes the preposition "from." According to my dictionary, "to discourage or keep (a person) from doing something through fear, anxiety, doubt, etc.". It is the more passive kind of coercion. By "compellence" I mean inducing a person to do something through fear, anxiety, doubt, etc.. "Compel" takes the preposition "to." My dictionary contains no word specialized toward this more active kind of coercion, so I coined the word.

Deterrence is simpler. The command to do something requires a date or deadline, to keep on not doing something is timeless. Acquiescence to a compellent threat is visibly responsive; doing nothing in face of a deterrent threat is not so obvious. Acquiescence to a compellent threat invites another demand; complying with a deterrent leaves things unchanged and leads to no sequel. Compellent threats have to be spelled out: "go back" needs an indication how far, "give help" an indication of what and how much; while "don't" usually takes its definition from what exists. And if a compellent threat is met by inaction, no event or initiative triggers or mandates the execution, while violation of a deterrent threat, unless softly done and gradually, initiates the

-21-

action. And in military affairs the deterrent threat can often target the same activity that constitutes the violation, while a compellent threat must often find a target disconnected from the desired response: "don't advance or I'll shoot" makes the connection, while "send money or..." cannot usually target the money but must find some linkage somewhere.

I propose that terrorist nuclear threats have a comparative advantage toward deterrence. The more familiar terrorist actions of recent years had the dynamics and disconnectedness of compellence. Organizations making nuclear threats, like nuclear nations, have a credibility problem; deterrent threats are more credible. One of the great advantages of deterrent threats is that they often do not need to be articulated. They are typically addressed to some obvious overt act. If you draw a gun on somebody approaching he may stop whether or not you tell him to; if you want him to turn around, take the keys from his pocket, and throw them to you over his shoulder, you have to say something. Not only does the deterrent threat economize communication and minimize ambiguity, it permits one to create a threat without doing anything belligerent, without acknowledging, even while denying, that one is threatening.

It was easy to draw up a list of things that the U.S. government might have done but didn't do for fear of jeopardizing the hostages in Tehran, "deterred" by the threat; it is not nearly so easy to draw up a convincing list of affirmative U.S. actions that were coerced through the hostages.

A second distinction for terrorist nuclear strategy is be-

tween military and civilian targets. A nuclear threat, and especially a detonation, will frighten, terrorize and intimidate, whatever the target indicated in the threat or attacked by a bomb. But if the unofficial mini-state aspires to international diplomacy, and identifies its role as taking part in international conflict, especially military conflict, it may want to legitimize its possession of weapons, its campaign of intimidation, even its use of nuclear explosives, by nominally confining its attention to military targets. It may not want to discredit the side that it favors. If the organization considers itself immune to reprisal because it has no homeland, and its location is unknown, it may not wish to make its intended beneficiary a target for reprisal. As in a conflict between India and Pakistan, Argentina and Brazil, Israel and Syria, Cambodia and Vietnam, or South Africa and any black nations of the continent, terrorist organizations may not want to appear inhumane and terrorist, and may select military targets, whether to attack or to threaten.

Similarly, the actions deterred may be military. Just as the United States would not consider nuclear threats except against some military "aggression," and all nations that make reference to nuclear weapons of their own do so in reference to self-defense or commitments in defense of allies, the terrorist organization may adopt the custom and confine its threats to the deterrence of "military aggression."

In doing so it need not look more terrorizing than France or the United States. By eschewing "massive retaliation" against homeland populations, and avoiding threats of destroying "enemy

-23-

societies as such," it may legitimize its nuclear role and appear less inhumane or destructive than the greater nuclear powers. Whatever it achieves for them, it may not cost them much to strike that posture.

In choosing the actions to deter and the targets to threaten, nuclear terrorists may enjoy the advantage of multiple victims. When an action they want to deter can be obstructed by any one of several deterrable actors, they may select their victims and targets for likely compliance. Let me use a historical instance as an example, one that does not have to be wholly invented. During the October War of 1973 the United States was denied by many European countries the privilege of refueling aircraft carrying ammunition and equipment for Israel. No nuclear threat was needed: it was megatons of energy to be withheld, not delivered, that deterred cooperation with the United States. But Portugal, justifying two decades of pretense that that country had anything to contribute in NATO, allowed use of airfields in the Azores. A pro-Arab terrorist organization, acting on its own or fronting for a government that had a few nuclear weapons, might have declared the resupply of Israel an aggressive intrusion into a military conflict, one that they would resist with their modest nuclear force. They would simply explode their weapon near a base on which U.S. planes were refueling unless the operation ceased. Assuming they could prove possession, their ability to do what they threatened could be credible. The United States might be deterred. Alternatively, the Portuguese government might be deterred. Or third, civilian employees and others near the

threatened site could be motivated to strike, to obstruct, to evacuate. If the threat were not heeded, and a weapon were detonated in the vicinity, the perpetrators would at least have caused minimal civilian damage attacking a military operation. Whatever the political and diplomatic consequences of such a stunning event--and on that I am not even going to conjecture--it at least does not appear a wholly self-defeating threat, or even a self-defeating action, from the point of view of an organization wholly sympathetic to the Syrian-Egyptian cause.

Notice that if we go back and replay the scenario, allowing some Israeli nuclear counter-threat that might entail equally imaginative targeting, we have an indeterminate situation, one in which the fact that the nuclear organization is not a recognized nation does not make much difference. I have heard people walk through comparable scenarios involving the government of Libya, conjecturing how a government like that of Libya, if it had a few nuclear weapons, might operate through a front organization, or issue its threat anonymously, or even detonate a weapon without acknowledging its role. I have heard people walk through scenarios in which nuclear weapons in the possession of a small nation get entrusted to some part of the armed forces, the Air Force or the Navy, and escape the control (or appear or are alleged to have escaped the control) of the responsible national government. Whether the nuclear-armed entity in these stories is a nation or not does not make much difference.

Notice that, like a Libyan or other government, an organization would not necessarily condition its nuclear participation

on a request from the government for whom it appears to be intervening. The purpose may not even be to serve the "beneficiary".

Governments are of course more susceptible to nuclear reprisal, or almost any other kind of reprisal, than an unattached or anonymous organization. Countries can be denied exports, blockaded, diplomatically ostracized, or even subjected to non-nuclear attack if they appear about to create a nuclear inferno in a population center or to rupture a moratorium on the use of nuclear weapons that has survived since V-J Day. In contrast, an organization that needs only a small boat to dock in a metropolitan harbor, with a nuclear weapon on board and some place to operate a two-way radio, can hardly be starved into second thoughts by denial of soybeans, military spare parts, or air traffic; and it evidently cannot be invaded or captured or we wouldn't have the problem in the first place.

The difference is undeniably important. It need not be decisive. At least up to the point of actually exploding a weapon a national government may be no more in danger of diplomatic or military counteraction. And even a nation that actually used nuclear weapons against enemy troops or enemy population would not necessarily be subjected to nuclear reprisal. Fear of escalation, abhorrence of anti-population attacks, and an interest in enhancing rather than abandoning nuclear restraint, could inhibit some of the potential deliverers of nuclear retaliation, especially when other modes of reprisal or disabling attack might be available. And if the non-governmental organization uses its nuclear status in military support of particular countries, it cannot be

wholly disinterested and unattached; and the nations supported may not escape all blame. So the difference, though important, may not be decisive.

Safeguarding Against Non-National Weapons

Eventually we may need a domain of strategy for coping with these lesser-sized nuclear threats, coming from either national governments or non-governmental organizations. It is likely to be at least as complicated, and different from, the principles and ideas that have been developed during the past three decades for the Soviet-American or NATO-Warsaw confrontation. It will be especially complicated by the utter lack of symmetry between the United States and any such nuclear adversaries or clients as we have been talking about. I do not propose to outline any such strategy here.

But in preventing the acquisition of nuclear capabilities by non-national entities there is at least one principle that I think is undeniable, whether or not it gets us very far. That is that the best way to keep weapons or weapons-material out of the hands of non-governmental entities is to try to keep it out of the hands of national governments. Saying that doesn't get us very far, but it does remind us that this is the same problem we were already worrying about. At least, it is a large part of what we should have been worrying about. International war--war between nations that are enemies of each other--are only one relevant occasion when possession of nuclear weapons might make a terrible difference.

The main use of military forces around the world seems to be to overthrow their own government or to fight other military forces within the same country--Air Force against Navy, officers against enlisted, East against West Pakistan, Moslem against Christian, Royalist against anti-Royalist, etc.. The risks that nuclear weapons, or the material from which such weapons can be assembled, would actually play a role in hostilities seems to be enhanced by the fact that military action in much of the world is so characterized by internal disorder and loss of national control over military forces. There is just a chance, maybe only a prayer, that some governments or heads of government may appreciate the dangers, to their own country and to themselves, of acquiring a weapon capability. Aside from becoming a target for nuclear blackmail or nuclear attack by joining the ranks of those who have declared themselves nuclear, some governments might possibly recognize how inherently divisive a small nuclear capability could be.

What would a wise head of government likely respond if offered immediate delivery of a few nuclear weapons, free of charge? I think he or she should respond, "Not yet--let me think about where to put them." Just as a prudent citizen might be appalled if a truck arrived and conspicuously delivered objects of great value that he had inadvertently won in some lottery, fearing that robbers and thieves would arrive before safeguards could be erected and that they might even leave him in worse shape than he was before the goods arrived, the acquisition of nuclear weapons could pose difficult questions for somebody like President

-28-

Sadat.

Does he sufficiently trust the loyalty and competence of senior military officers to put his weapons in the hands of the military? Can he afford the display of distrust in keeping them from the military? Must he provide them to the several competing branches of military service or can he elevate one service as the only nuclear force? Could he, as Secretary MacNamara could not in the early 1960's, get enthusiastic military acquiescence in electronically safeguarded presidential control? And could he in some future war--a contingency that has to be considered possible, otherwise why nuclear weapons?--let an army be surrounded, immobilized, even captured, without authorizing some use of these supposedly awesome weapons? And what use might that be? And if, in the event, he withheld the weapons, wouldn't he regret having had them?

I wish there were more evidence that some heads of government shared my misgivings. I have never heard representatives of Pakistan or Iraq or Argentina explain why a positive interest in nuclear weapons should never be imputed to them, the things being far more dangerous than they were worth. We might not believe them if we heard them say it, but it would be good to know at least that it had occurred to them.

As part of an anti-proliferation strategy, for the United States at any rate, there is little that can be credibly done to increase the alarm any heads of non-nuclear governments might feel at the prospect of getting close to having nuclear weapons. We have too evident an interest of our own. It must furthermore



-29-

be exceedingly difficult to get a president, a defense minister, a minister for nuclear power, and a chief of staff of armed forces, to sit around the table together and acknowledge that they may shortly be on opposite sides of a coup or civil war, or desperately evacuating in disorganization, and that they would be wise not to encumber themselves with as competitive a prize as a nuclear arsenal.

Statement of Joseph A. Yager
Before the Subcommittee on Energy, Nuclear Proliferation,
and Federal Processes of the Senate Committee
on Governmental Affairs

June 24, 1981

I have been asked to give my views on what changes or improvements should be made in present international arrangements designed to prevent the further spread of nuclear weapons. I am happy to do so, but must emphasize that I speak only for myself. My views should not be attributed to the trustees, officers, or other staff members of the Brookings Institution.

Any new international efforts to reduce the risk of nuclear weapons proliferation must build on the present regime whose principal components are the nonproliferation treaty and the safeguards administered by the International Atomic Energy Agency. A question that must be in all of our minds today is whether the recent Israeli bombing of Iraq's new research reactor will have any substantial adverse effect on the present nonproliferation regime. My tentative judgment is that it will not.

Certainly, Israel's action was a resounding vote of nonconfidence in safeguards, but this view does not appear to be shared by other countries. On the contrary, the Israeli raid on Iraq has given the IAEA an opportunity to reach a wide audience with an explanation of how its safeguards work. The raid could therefore have a mildly positive, if not intended, effect on the acceptability of the present

nonproliferation regime.

The most important consequence of the Israeli attack may, however, be to call attention to two serious problems concerning nuclear energy and the Middle East. First, even nonmilitary nuclear technology can be destabilizing in this volatile area. Second, whether or not the Iraqi research reactor had a hidden military purpose, a nuclear confrontation between Israel and the Arabs is a real possibility sometime in the future. The first problem suggests that, in the Middle East, normal safeguards should be supplemented by other measures, such as the removal of spent nuclear fuel from the area. The Israeli proposal of a nuclear free zone is an appropriate response to the second problem. It remains to be seen, however, whether Israel will give this proposal specific meaning by opening its nuclear facilities to international inspection and turning over any stocks of separated plutonium to international custody.

On the broader international scene, we face two kinds of proliferation threats. There are the specific difficult cases, of which India and Pakistan are today the most notable. And there is the more general threat posed by the spread of reprocessing and enrichment facilities— especially the former-- that can produce the explosive component of nuclear weapons. The remainder of my statement will deal with the second of these threats.

I begin with two assumptions. First, any measures to improve the present nonproliferation regime must strike a balance between energy and nonproliferation goals. Second, the effort to defer reprocessing

has failed. An improved nonproliferation regime must somehow accommodate reprocessing on an increasing scale.

Five policy problems require attention at the present state of development of the civil nuclear energy industry:

- Controlling separated plutonium
- Channelling the development of reprocessing capacity
- Providing alternatives to the national storage of spent fuel
- Increasing the assurance of nuclear fuel supply, and
- Building a consensus on the rules of trade in sensitive nuclear materials, equipment and technology.

It is clearly important to get on with the task of finding solutions to these problems. Over a year has passed since the conclusion of the International Nuclear Fuel Cycle Evaluation and almost a year since the Second NPT Review Conference. Some of the favorable atmosphere for international cooperation in nuclear energy created by INFCE has been dissipated. And if the United States and other nuclear weapon states do not show signs of responding constructively to the criticisms of the present nonproliferation regime expressed at the Second NPT Review Conference, they can expect more serious trouble at the special United Nations conference on nuclear energy in 1983 and at the Third NPT Review Conference in 1985.

The practical question is how to proceed. It seems to me that the first requirement is for a continuing international forum in which all interested governments can exchange views on the full range of problems

with respect to civil nuclear energy. Such a forum would perpetuate the spirit of INFCE, but be more policy oriented. It could, as appropriate, create smaller working groups to work on particular problems. The Committee on Assurance of Supply, created by the IAEA about a year ago, could evolve into what is needed.

The most important of the five policy problems that I have listed is controlling separated plutonium. The Statute of the IAEA already permits that agency to take custody of excess plutonium, and for over two years an expert group convened by the IAEA has been working on detailed plans for an international plutonium storage system. Progress has been slow, apparently because of lack of agreement among key governments at the political level.

The essential provisions of an effective international plutonium storage system are quite clear. Newly separated civil plutonium (and, if possible, existing inventories of civil plutonium) should be put in internationally controlled depots. Plutonium should be released from the depots only on a showing that it would be used in a power reactor or in a peaceful research project within a reasonable period of time.

For economic reasons, most plutonium would probably be left in the storage depots for use some years from now in breeder reactors. It would be desirable, however, to negotiate a side understanding that plutonium would not be recycled in today's thermal reactors. Such an understanding would reduce the problem of maintaining surveillance and protection over plutonium en route to widely dispersed fuel fabrication plants and power plants or in stockpiles at such plants. If there is

to be no thermal recycle, countries without breeder programs would have to be given the option of selling their plutonium to countries with such programs or possibly to the agency administering the storage depots.

Channeling the development of reprocessing capacity is, if anything, more difficult than establishing effective controls over separated plutonium. Ideally, reprocessing should take place only in countries that already have nuclear weapons, but this would not be accepted by the nonnuclear weapon states. The best feasible approach is to try to establish the principle that any new reprocessing plants should be large ones. The number of plants would then be less than if more small plants were built, and new plants would tend to be located in countries with sizable civil nuclear energy programs. By historical accident, those countries already have nuclear weapons or have little interest in acquiring them.

The large plant principle is good economic policy, as well as good nonproliferation policy, because there are significant economies of scale in reprocessing. Fuel suppliers could reinforce economics by refusing to agree to reprocessing of fuel that they had originally supplied in new small plants. Existing small plants would have to be "grandfathered" in. Also, sponsors of the large plant principle might have to help countries with modest civil nuclear energy programs to join in multinational ventures that would build large reprocessing plants.

Increasing national inventories of spent fuel could provide incentives to build national reprocessing plants. Such inventories are also a potential proliferation risk because of the plutonium that they contain. Alternatives to national storage are storage by the existing large reprocessors in France and England, return to the original fuel-supplying countries, and construction of regional storage facilities.

Viewed realistically, all of these alternatives together cannot be expected to keep the fuel-importing nonnuclear weapon states from accumulating substantial stocks of spent fuel. These alternatives should be pursued, however, to reduce incentives to build national reprocessing plants. The United States should continue to explore the feasibility of establishing a regional spent fuel storage center on a Pacific island. Public opposition would probably prevent the early return of U.S.-origin spent fuel to this country, but this possibility should be left open.

Several years ago, increasing the assurance of nuclear fuel supply was regarded as an important problem. It seems less urgent today as concern over the early exhaustion of relatively low cost uranium reserves has declined. Considerable support still exists, however, for the principle (enunciated by the director-general of the IAEA) that irrevocable safeguards should mean irrevocable assurance of supplies.

If the assurance of nuclear fuel supply is to be increased, nothing as ambitious as the nuclear fuel bank proposed by former President Carter would be needed. The fuel bank in fact aroused little

interest or support outside the United States. Serious consideration might be given to the establishment of a system of cross guarantees, whereby a group of fuel suppliers would guarantee each other's supply contracts against specified contingencies.

Creation of a continuing international forum and progress in solving various specific problems could facilitate the eventual emergence of a consensus on the rules of trade in sensitive nuclear materials, equipment, and technology. In substance, but not necessarily in form, this consensus would be an informal bargain between exporters and importers under which the exporters would assure the availability of specified items to importers that voluntarily followed certain rules. Among the rules might be the safeguarding of all civil nuclear facilities, handling separated plutonium in accordance with the international plutonium storage system, and refraining from building small reprocessing plants. As the consensus took shape and gained adherents, it could take the place of the guidelines established by the London nuclear suppliers group in 1978.

I have said nothing thus far about the possible need to amend the Nuclear Nonproliferation Act of 1978. I believe that the first step is to determine what improvements in the present nonproliferation regime are both desirable and feasible. Only then would it be necessary to consider amending the NNPA. I believe, however, that a few amendments will eventually prove to be needed. For example, agreement on an effective international plutonium storage system may not be possible, unless the United States and other suppliers suspend their unilateral

rights to control plutonium extracted from fuel that they originally supplied. If the storage system were strict enough, the substantive provisions of the NNPA (no significant increase in the proliferation risk and timely warning) might be satisfied, but the law's procedural provisions could block a general suspension of unilateral rights by the United States.

Senator PERCY. Our final panel this morning is Mr. Carl Walske, president of the Atomic Industrial Forum; Mr. Jacob Sherr and the Honorable Dwight J. Porter. I am pleased that representatives of both the nuclear industry and environmental interests are able to be with us today.

Mr. Carl Walske, president of Atomic Industrial Forum, has been involved in research, management, and international activities in the nuclear field since 1947. He was a U.S. delegate to the Nuclear Test Ban Conference, has been scientific attaché to NATO and the OECD, and was assistant leader of the Theoretical Division at Los Alamos.

Mr. Jacob Scherr, senior staff attorney with the Natural Resources Defense Council since 1975, has testified several times before Congress on the subject of nuclear proliferation. He has dealt specifically with the problems of the export of plutonium and other weapons grade material and with the international spread of nuclear weapons and technology.

We had asked Mr. Thomas Cochran, staff scientist of the Natural Resources Defense Council, to join us today, but were informed that he is in the hospital. I am sure that the other members of this subcommittee join me in extending our best wishes to Mr. Cochran for a speedy recovery.

Ambassador Dwight Porter, who holds the rank of career minister, was appointed permanent U.S. representative to the International Atomic Energy Agency in 1970, serving there until 1975, when he joined Westinghouse Electric Corp. in the International Division.

While it may be too much to expect a consensus from this panel, I do hope that you will be able to shed some light on the various problems in our past nonproliferation policy and the pitfalls we face in the next decade.

Mr. Ambassador, strengthening the international nuclear regime must be a major objective of U.S. foreign policy. From your experience both in government and in industry, we would like to know what we should do to strengthen international cooperation and nuclear proliferation policies. If you would care to make any other comments, please do so.

TESTIMONY OF CARL WALSKE, PRESIDENT, ATOMIC INDUSTRIAL FORUM, BETHESDA, MD.; DWIGHT J. PORTER, VICE PRESIDENT FOR INTERNATIONAL AFFAIRS, WESTINGHOUSE ELECTRIC CORP., PITTSBURGH, PA.; AND S. JACOB SCHERR, ATTORNEY FOR THE NATURAL RESOURCES DEFENSE COUNCIL, WASHINGTON, D.C.

Mr. PORTER. Two or three quick ones, Senator. I think we are running late. I have a lot to say in very little time. I would say three things: First of all, I see *déjà vu* in what is going on here today. We have gone through this before in our national debates on nonproliferation where we raise great questions when external events suddenly hit us. Sometimes I think we overreact to those events.

We fail to realize and comprehend that we have basically a working and workable international regime and the job is to improve that regime, not to destroy it. There is much ignorance on this subject. For instance, when Mr. Richter testified last week, he made it very clear he thought the IAEA was an essential mechanism, the world simply

had to have it. He also thought and said that power reactors could be easily safeguarded.

What he was expressing concern about was a large material reactor of the kind that exists in Iraq. It is a very special and unique case. We have tended to generalize from his specific comments into a broad indictment and condemnation of the international system. I simply submit that is not the case.

I think the only other general comment I would make is that, in our debate on this, I hear it from all sides; from editorials, from the Senate, from the executive branch, we talk about what we will do—we, we meaning Americans, what we are going to do about this.

Senator PERCY. Could you pull the mike a little closer to you, Mr. Ambassador?

Mr. PORTER. I think we fail totally to come to grips with the limits of what we can do about this. I hate to say that. I wish those limits on American capacity to control events did not exist. The fact remains that, starting with the U.S. monopoly 10 years ago in the whole commercial nuclear trade, we today are just one of many suppliers. In many ways based on what has happened to our domestic energy policy, we are actually behind other states of the world, in breeder reactors, reprocessing the back end of the fuel cycle.

To do something, we must be the leaders and this we have failed to have been. I think that is the foremost comment I must make. We controlled the world nuclear energy game 10 years ago. When we passed the Non-Proliferation Act in 1978, our only real asset left to us was a rapidly wasting one—that we largely controlled world enrichment facilities. We now no longer control that. When we stop to think about what we can do, let's also think about what the limitations are to what we can accomplish.

Senator PERCY. Thank you, Ambassador Porter very much indeed. You may be outnumbered today. Mr. Scherr, but we will give you equal time. We are certainly pleased to have you here. Any comments you would like to make? I have a series of questions for you.

Mr. SCHERR. I would like to make a few brief comments on U.S. nuclear nonproliferation policy in the wake of the recent Israeli raid, which brought the problem of proliferation much closer to home for many Americans. I believe that we must now face up to the reality that the existing system of bilateral and multilateral safeguards against nuclear proliferation is simply too weak, too ambiguous to provide assurances to the United States and to other neighboring countries that nonweapon nations are not using "peaceful" programs for the acquisition of atomic bombs.

Last week, the Foreign Affairs Committee heard testimony from IAEA inspector Robert Richter on the inadequacies of IAEA safeguards. I would like to point out deficiencies of the IAEA are not limited to Iraq nor are the concerns Mr. Richter expressed new. In 1976, the GAO issued a report on the effectiveness of IAEA safeguards and described serious problems with the IAEA safeguard inspecting and accountancy. At the time, IAEA had 40 inspectors to safeguard 400 facilities around the world. In response to this report and growing concern about nonproliferation, the United States has acted to increase funding to the IAEA and to strengthen it. Yet in May 1981, the GAO reported that while there have been efforts made to address some of the problems that have been identified in their earlier report,

"The magnitude of IAEA safeguard responsibilities has outpaced these efforts and the IAEA continues to encounter the same basic problems."

In 1980, the number of inspectors of the IAEA had increased to about 100 fully trained inspectors. However, the number of facilities under IAEA supervision and safeguards had grown to over 700. These include a large number of research reactors and a growing number of facilities including reprocessing and fuel fabrication plants for which the IAEA does not have the technology to safeguard at this time.

There is increasing concern about the presence of weapons grade materials, such as plutonium and highly enriched uranium, in the civilian nuclear fuel cycle. The expanded use of these materials will make the kind of scenarios that Professor Schelling described earlier much more likely. Nonnuclear-weapons countries in possession of these materials are just a few weeks or months away from acquiring nuclear weapons. With a short lead time, the concept of "timely warning" of a diversion which has been central for many years to our nonproliferation policy, becomes totally meaningless. Less than 20 kilograms of highly enriched uranium is necessary to make a small bomb. Now the IAEA estimates by 1986 it will have under its safeguards some 250 tons of plutonium, separated or unseparated, and 15.6 tons of highly enriched uranium.

I agree with Ambassador Porter that the United States must again reassert its leadership in the nonproliferation area. However, my idea of leadership is somewhat different. For too many years, the focus of U.S. nonproliferation policy has been upon being a so-called reliable supplier. We trained thousands of foreign technicians in nuclear technology, research reactors, and subsequently subsidized the sales of commercial facilities overseas. In addition, we helped create the nuclear industries in Europe which we now compete with and we have in the past used nuclear power as a tool of our foreign policy in dealing with developing countries. The result has been that one nonweapons nation has already exploded a bomb using "peaceful" nuclear materials and several more are close to weapons capability.

I think that the United States must, in light of the Israeli raid, take heed of that warning and not wait until the day that a supposedly non-nuclear-weapons nation uses atomic bombs to destroy another nation. Nuclear proliferation is like cancer which, if unchecked, will destroy our national security. Its cure will take more than the balms and ointments we have applied in the past. I think it will require some bold new American initiatives to overhaul the existing international system of controls and to limit the presence of highly enriched uranium and plutonium in the civilian fuel cycle. I believe we have no other choice.

Senator PERCY. Thank you very kindly. I appreciate it. Mr. Walske?

Mr. WALSKE. I have submitted, I hope, for the record a statement from AIF's Committee on International Nuclear Policy that was actually issued in March of this year. It is still valid.

Senator PERCY. Your full statement will be incorporated in the record following your testimony.

Mr. WALSKE. The committee has a rather broad industry representation, a 25-member committee. It is a statement which contains suggestions for improving the U.S. approach to nonproliferation and

achieving more results. I shall supplement it here by saying that the overriding failure of our policy in the last 4 or 5 years has really been connected with the point Ambassador Porter brought up.

The problem arises from our effort to dictate policy almost unilaterally in a situation where we had to have the cooperation of other supplier nations. If we had, in fact, a monopoly on technology and material, we probably could dictate, but we do not. It has been necessary from some years back to have the cooperation of other supplier nations in order to establish rules to deal with nuclear exports that would inhibit proliferation of nuclear weapons.

The policy that we did follow was very, very even-handed in its way. We sought to discourage reprocessing, sought to discourage progress on the breeder reactor in all countries. We inhibited, therefore, the disposal of spent fuel from reactors in Western Europe and Japan, just the countries where we had to have cooperation on export guide lines.

In other words, our policy inhibited the nuclear programs of the very people whose cooperation we needed in order to be successful in establishing a good nonproliferation regime.

Today I think we have a chance to go back and revise things. I think we have a chance to follow some of the suggestions that were made by earlier panelists to the effect that large countries, countries that are stable countries, countries with large nuclear programs should not be inhibited in their breeder programs and reprocessing programs. But a consensus should be developed to slow the spread of that technology to the countries which don't need it and don't need it for some time yet.

A good bit of this is detailed in our statement. I just wanted to reiterate that.

The other comment that I would make is really in reaction to Mr. Scherr's statement in which he discusses failures of the safeguard system.

First, I point out that in our statement we say the safeguard system should be strengthened. We do not go into fine grain detail of just exactly what should be strengthened, but clearly in the case of a materials testing reactor, more safeguards are appropriate. That would be something I think we would all be for. But I would caution that even if there had been perfect safeguards on the Iraqi reactor, a country can drop out of the Non-Proliferation Treaty on 90 days' notice, I believe, for reasons of overriding national security. That fact alone, with the potential of the facility, probably would have made it something that the Israelis wouldn't tolerate.

In fact, the safeguards to that time, combined with the bilateral arrangements which we hear the French have made, were not all that bad. Probably any misuse of that facility would have been made evident with some warning, but still the Israelis didn't find the situation satisfactory.

So there is something that goes beyond safeguards and this puts you into the political and military and economic realm that has been discussed earlier this morning, too. The problem is much bigger than just the control of technology. The problem has to do with other very basic needs of countries.

Senator PERCY. Thank you very much, indeed. Mr. Scherr, let's start with you on the proposition that nuclear power is and will re-

main throughout this century a major source of energy in an oil-short world. How do you think we can achieve the benefits of nuclear power without the unwanted side effects of environmental contamination and the spread of nuclear weapons?

Mr. SCHERR. We have to continue to recognize that this is inherently dangerous technology and one that has to be subject to very, very strict environmental controls as well as controls with regard to non-proliferation. What I was trying to suggest by my testimony earlier is that we have created a system, NPT-IAEA system which on surface appears to be quite rigorous but, in fact, is not.

However, it has been used by countries such as Iraq and France, and Italy as well, to justify the transfer of materials and technology which is a very ambiguous nature which can be used for both peaceful purposes but as well for weapons. My feeling now is if we really are going to continue to use nuclear power, I think the United States has to show it is serious about doing something about nonproliferation.

I think the kind of initiatives Senator Glenn has mentioned today are the sorts of things I would like to see.

Senator PERCY. Because we will adjourn today at 1 p.m., in just 10 minutes, you can certainly give any amplification you want to your responses, the record will be kept open for that purpose.

Ambassador Porter, as a representative of Westinghouse one of the largest nuclear vendors, you are familiar with the international nuclear market. What impediments have the U.S. nuclear industries faced in their competition with foreign industry? What can be done to ease these impediments without harming our nonproliferation goals?

Mr. PORTER. As I mentioned earlier, Senator, I don't believe, in this debate of the adequacy of safeguards, anybody can be concerned about the adequacy of safeguards with respect to nuclear power plants. A large nuclear materials testing reactor is a different thing. That is what we have been talking about today.

One could talk for a long time, which I don't have, about the problems created by the recent nuclear export policy constraints of the United States with respect to nuclear exports. One could talk a long time about the concerns of the nuclear industry to maintain exports, to maintain the health of our nuclear industry in a situation where domestic orders are not now available, and when we are against major foreign competition.

Your question really requires a very brief rundown of what is the nuclear export market. I would say for the next 2 years, the nuclear export market, where U.S. firms can compete, is in four countries, for seven reactors with a power level of about 7,000 megawatts.

There are another four countries where the United States, I think, has a less competitive position, vis-a-vis the foreign competition, represented by France, Germany, Canada, the Soviet Union, Sweden. These four customer countries will be buying six reactors. And then over the next few years there is a very substantial market in about 12 to 14 countries where a lot of reactors are going to be bought.

Those reactors are going to be built by somebody. They are going to be financed by somebody. Three things are going against the American vendors. The first one is there is still much concern about our nuclear export policy—our reliability as a supplier. For instance, a country like Mexico which agrees with us completely on nonproliferation goals disagrees with us dramatically on the way we go about it.

Yet Mexico is going to order over the next two decades about 20 reactors.

Somebody is going to build them in Mexico and elsewhere. There is, in other words a large export market. The United States competes for part of it.

The second problem we have, of course, is the question of export credit financing which is not germane to this hearing, but which is also an important problem. We are not offering export credit which can compete with those offered by the French, Germans, and others. The third problem is that we have, until this year, appeared in the recent past to have a domestic energy policy which has treated nuclear energy as a "last resort." This implies to others the loss of our technological leadership in the nuclear field. Potential customers obviously want to cooperate with nuclear suppliers who support strong ongoing domestic nuclear programs.

Senator PERCY. Thank you very much. We do have another vote on and so we will probably only have 7 minutes or so left. I will have to go over to that.

Mr. Walske, as a proponent of the breeder reactor and the use of plutonium fuel, what effect do you think the development of the breeder reactor within the United States will have on our nonproliferation objectives?

Mr. WALSKE. As you know, the Carter administration proposed a delay for the breeder reactor in the United States and that had very little impact on countries that had breeder programs. They went right on ahead while we treaded water at best.

So I think that example, that theory, the bargaining chip theory that the Carter administration developed, bargained away our breeder program in order to induce people to go slow on theirs, but failed completely and for good reason, because the countries in Western Europe and Japan are even more squeezed than we are on energy supplies.

Senator PERCY. Mr. Scherr, you can look at it two ways, the use of plutonium fuels in breeder reactors offers the possibility of vastly extending the Earth's energy resources.

On the other hand, as you pointed out, it presents proliferation and environmental problems. Could you just expand on your previous comments in this regard?

Mr. SCHERR. I would like to point out that aside from the proliferation risk, there are severe doubts about the economics of the breeder reactor, particularly the economics of going ahead with the construction of the Clinch River breeder reactor, here we share the concerns of David Stockman which he expressed when he was in Congress in 1977.

I think the United States example in dealing with plutonium and with the breeder does have an impact on other countries. We are seeing a changed situation in France now and I think there may be hope of reconsideration of that breeder program, which is viewed as the most advanced in the world. I don't accept that the United States is as weak as some of the other panelists have made us out to be. Other countries still look to us as a leader, and if we do decide, perhaps in our own self-interest, to restrain the development of the breeder, eventually other countries will follow our leadership in this regard.

Senator PERCY. It has been argued that the use of plutonium has really a quite marginal economic value, at least for the next decade or so, and has certain environmental risks associated with it.

Our allies, however, are committed to a breeder program and reprocessing. It will almost certainly continue with or without our advice and consent in this regard. What should our international policy, in your judgment, be, toward the use of plutonium fuels in other countries?

Mr. SCHERR. In dealing with the proliferation problem, you have to realize that we have had essentially 25 years, a quarter-century, of drift toward reprocessing and the use of plutonium. Yet there wasn't much thought given to the weapons implications of the widespread use of plutonium. In the last 3 or 4 years, we have focused on this problem and the United States has taken some initiative to try and reverse this trend. I think that really it is too soon for us to determine whether other countries are going to rush ahead with this technology. As I pointed out earlier we are facing a much different political situation in France today. I think we will see in the next year or so a serious reconsideration by France of its commitment to the breeder. It is important the United States endeavor to get international agreement to reduce the use of weapons grade materials in the civilian fuels cycle.

Senator PERCY. Thank you. Perhaps a final question, because of the vote, Mr. Walske. The General Accounting Office, in its review of the Nuclear Non-Proliferation Act, said, and I will quote, "We did not find the arguments for removal of the NRC persuasive enough to recommend such a major change," What do you think we should do about the NRC's role in the nuclear export process?

Mr. WALSKE. That is in the paper here in summary form—that is, the State Department should be made the lead agency, I believe. I think it is a matter that has more to do with foreign policy than it does with the technical expertise which the NRC can bring to bear. The NRC can make an input to the decision by the State Department.

The whole process can be monitored by the Congress. But as primarily a foreign policy matter, I think it should be directly in the province of the President with oversight by the Congress.

Senator PERCY. Mr. Scherr, do you have any comment on that?

Mr. SCHERR. I totally disagree with that position. I think the creation of the NRC as an independent check on the executive branch was a direct response by the Congress to the failure of the State Department to apply consistent effective non-proliferation standards to U.S. nuclear exports. I would be very opposed to putting the control of nuclear exports back behind closed doors. I think non-proliferation is a problem that should be before the public and Congress constantly. Otherwise, we will want to forget about it. Yet the problem of the spread of atomic weapons won't go away.

Senator PERCY. Gentlemen, I wish to thank you for being with us today. Your complete testimony will be incorporated in the record and will be distributed to all members of the committee who could not be here because of the hearing action on the floor.

[The prepared statements of Messrs. Walske and Scherr follow:]

U.S. Nuclear Export Policy

A Statement by the Atomic Industrial Forum's
Committee on International Nuclear Policy

Submitted by Carl Walske

March 1981

INTRODUCTION

Over the last four years the U.S. has made a number of nuclear export policy changes, the objective of which were to limit the proliferation of nuclear weapons capabilities by increasing U.S. controls over the fuel cycle programs of its nuclear trading partners. These U.S. actions have drawn strong criticism from those trading partners, including principal U.S. allies. The situation culminated in 1980 with two major international deliberations which challenged the premises of the new U.S. policy and the effectiveness of this country's leadership on non-proliferation. The first was the conclusion of the International Nuclear Fuel Cycle Evaluation (INFCE); the second was the Review Conference of the Nuclear Non-Proliferation Treaty (NPT). The results of both have increased the urgency for a reexamination of current U.S. policy and underscored the need for a non-proliferation strategy which places greater emphasis on international cooperation and agreement.

With these developments as background, the Atomic Industrial Forum's Committee on International Nuclear Policy has made a thorough review of U.S. non-proliferation policy. This statement summarizes the Committee's review. The members of the Committee are listed in Attachment A.

POLICY STATEMENT

An effective non-proliferation policy must be part of, and consistent with, the overall foreign policy of the United States. It must include means for meeting the pressing energy requirements of the world and recognize the consequences for the U.S. in failing to do so. Serious proliferation threats must be dealt with promptly and effectively. Nuclear power programs which present no proliferation threat should not be penalized in the doctrinaire pursuit of a policy of non-discrimination.

Non-proliferation policy should support the productive contribution which nuclear energy can make within a framework of responsible and broadly accepted safeguards. Further, if the policy is to be successful, it must apply the most important non-proliferation lesson of the past 25 years: U.S. leadership in development and application of peaceful nuclear uses, and in nuclear cooperation and trade, is central to achieving this country's non-proliferation goals.

The nuclear policies adopted by this country in the late 1970's have been seriously deficient in all of these respects, weakening both our domestic program and our international leadership. We now have the opportunity for constructive change. Unless we act on it, we shall forfeit the opportunity to regain U.S. leadership and thwart our non-proliferation goals.

RECOMMENDATIONS

A. Guiding Principles

This Committee believes that in reforming nuclear export policies, the U.S. must abide by the following principles, which have not received sufficient attention in recent years:

- Primary emphasis should be placed on the central concept of the Atoms-for-Peace program and of the Nuclear Non-Proliferation Treaty (NPT): cooperation with other countries in the development of nuclear power under IAEA safeguards is the most effective non-proliferation tool.
- The reliability of U.S. political and supply commitments and the predictability and timeliness of U.S. export actions are cardinal elements of an effective non-proliferation policy.
- A strong domestic nuclear program is essential to U.S. leadership in achieving its non-proliferation goals.

B. Implementing Actions

To increase the effectiveness of our country's non-proliferation policy, the Committee recommends that the U.S. take the following actions, which represent significant changes from recent U.S. policies:

- Amend the Nuclear Non-Proliferation Act of 1978 (NNPA) to enhance the reliability of U.S. commitments and the efficiency of the export licensing process.
 - Assign to the Department of State the nuclear export licensing functions now performed by the Nuclear Regulatory Commission.
 - Avoid unilateral retroactive conditions on U.S. bilateral commitments and supply arrangements.
 - Reduce to the necessary minimum case-by-case U.S. export actions. Provide for life-of-reactor fuel licensing for countries meeting safeguards and non-proliferation commitments.
 - Establish workable criteria for spent fuel transfers.
- Provide fuel cycle management as well as enrichment services to user countries without such capabilities and encourage other supplier nations to do the same within a framework of commonly agreed non-proliferation measures.
- Reinvalidate the U.S. program for the development and demonstration of the breeder and of the supporting fuel cycle, including reprocessing.

- Cooperate in breeder R&D and in related fuel cycle activities with countries having an industrial justification therefor, and provide for the orderly entry of other countries into such activities when they reach a comparable stage.
- Seek international consensus that would limit plutonium use to such countries.
- Actively support an international plutonium storage regime under IAEA auspices.

In addition to these changes in direction, the U.S. should also continue the following important actions:

- Seek agreement with other countries to limit nuclear trade under arrangements made subsequent to such agreement to those non-nuclear weapon states that are NPT parties or are willing to accept full scope IAEA safeguards and peaceful use commitments.
- Support the IAEA and strengthen its safeguards capabilities.

In determining and implementing future U.S. policy, this Committee continues to believe that U.S. industry can make a meaningful contribution. We urge that industry be provided appropriate opportunity for consultation and cooperation with the government. We believe this will lead to more effective non-proliferation and related export policies.

THE NEED FOR NUCLEAR ENERGY

The need for nuclear energy in the world is real. The Middle East, a politically volatile and unstable region, is the major supplier of oil to both rich and poor countries. During the two decades remaining in this century, the supplies of oil from this region, even with political stability, are expected to decline. These shortages of oil will impact on a worldwide basis, placing severe strains on international stability. The solution to this pending crisis, to be effective, must also be on a worldwide basis.

Nuclear energy can help relieve the growing pressures on the supplies of oil. If countries capable of employing nuclear technology vigorously expand its use, additional supplies of oil will be available for alternate uses and for poor and less developed countries. Because of the long lead times involved, actions to this end must begin or be accelerated now.

Commercial nuclear technology is no longer a monopoly of the U.S. (See discussion in Appendix I). Other industrialized nations appreciate the strategic, economic, employment, and balance of payment incentives and have developed the capability to compete in

the worldwide commercialization of nuclear power. In these countries, export activities are a joint endeavor of government and industry, a formidable combination when compared to the fragmented and sometimes adversarial nature of government-industry relationships in the U.S.

THE NEGATIVE EFFECTS OF RECENT U.S. POLICY

Changes in U.S. policy in the last half of the 1970's have not been conducive to the development of nuclear energy or to U.S. influence over the control of nuclear weapons proliferation. President Carter's April 1977 statement (deferring indefinitely U.S. commercial reprocessing and recycle of plutonium and delaying the breeder) and the Nuclear Non-Proliferation Act of 1978 (applying new, and sometimes retroactive, export and post-export controls) have been a particular cause of concern to other advanced industrial countries. Many highly industrialized countries, which include our principal allies, see the benefits and risks differently and all resent the unilateral imposition by the U.S. of new conditions on existing bilateral agreements and supply contracts. The developing countries are also extremely concerned that the U.S. policy changes could curtail their opportunities to develop nuclear power and that this would violate the letter and spirit of the Nuclear Non-Proliferation Treaty (NPT).

In short, we are perceived as having replaced a non-proliferation regime emphasizing U.S. technological leadership and cooperation with other countries in nuclear power development with a policy which views nuclear power negatively, shuns technological advancement, and relies predominantly upon unilateral controls.

Past U.S. non-proliferation policy, including certain aspects of NNPA, are seriously flawed. They are not meeting its objective of limiting the potential for the proliferation of nuclear weapons, and they are thwarting a major means of achieving that objective by undermining U.S. reliability as a trading partner.

In an effort to get other countries to accept his policy changes, President Carter initiated INFCE, which brought together industrialized and developing countries having interests in nuclear power. INFCE provided a better understanding of the proliferation problem and the need for cooperation among countries in the secure uses of nuclear power.

The INFCE deliberations and their outcome clearly demonstrated that recent U.S. policies, blocking development of the nuclear fuel cycle and the use of plutonium will not be followed by other countries. The time has come to take stock of what INFCE means for future

U.S. policy — and to act on that assessment. A number of pressing issues were held in abeyance or adjusted on an interim basis during the course of INFCE. However, until there are signs of change in the unilateral aspects of present U.S. policy, the tensions created by U.S. actions will remain. INFCE, in short, provided an opportunity for reassertion of U.S. leadership which this country should welcome.

THE VALUE OF A VIABLE NUCLEAR EXPORT PROGRAM

A viable U.S. export program is an important tool for achieving non-proliferation objectives. Indeed, U.S. nuclear cooperation and trade were instrumental in building the two main international structures on which our non-proliferation policy rests, the NPT and the IAEA. However, a viable nuclear export program requires U.S. fidelity to its obligations under contracts to supply enrichment services and under the NPT and existing agreements for nuclear cooperation. This is essential to a viable nuclear export program and to effective non-proliferation. Further, for U.S. suppliers of reactors, services, and fuel to be credible overseas, the U.S. Government must apply consistent export licensing requirements. Unilateral changes in such requirements must be avoided. A user country needs assurance that the necessary export licenses will be granted if it is meeting its safeguards and non-proliferation commitments. Any perception that a billion dollar reactor project might be halted prior to completion or a long-standing fuel commitment abrogated due to a unilateral change in U.S. export policy will drive overseas buyers to other suppliers and discourage U.S. suppliers from bidding on contracts.

Also important to a viable U.S. nuclear export program are adequate financial arrangements to user nations which are competitive with those available from other supplier nations.

Foreign governments, which subsidize their indigenous suppliers, well understand the economic incentives and have been willing to take extraordinary steps to assist in obtaining export orders. Consistent with U.S. trade objectives, a greater cooperation between government and industry is required to compete with these efforts.

In recent years the U.S. share of the available reactor export market has decreased markedly. Prior to 1975, U.S. suppliers received over 70% of such orders, but during the last five years, the U.S. share of orders was less than 50%. In part, this dramatic decrease is due to the uncertainties in U.S. export policy as viewed by other countries.

In addition to its adverse impact on the ability to influence non-proliferation policies, the market share loss affects U.S. employment opportunities, and will also lead over a period of time to an erosion of technological leadership.

Loss of market share also affects our balance of trade. During the next 10 years the potential export market could easily exceed several billion dollars annually in new orders. Nuclear power plants and related fuel cycle services are one of the largest items which the United States has in its export portfolio. Existing U.S. enrichment contracts with overseas customers alone are worth \$13 billion, and each nominal 1000 MWe nuclear plant export can, on the average, be expected to:

- enhance the U.S. balance of trade by more than \$500 million over an initial period of 6-7 years and by \$500 million over a 20-30 year period thereafter.
- provide up to 60,000 man years of employment for U.S. workers during the same period.
- support the acceptance of U.S. environmental and safety requirements in the international nuclear market.

RESHAPING U.S. POLICY TO ADVANCE NON-PROLIFERATION AIMS

Restore Cooperation and Mutual Commitment

Practical options for post-INFCE U.S. policy must focus on cooperation among sovereign countries acting in accordance with their own best interest.

Effective nonproliferation policy cannot rely on unilateral control measures. Nonproliferation is a problem requiring commitments by both supplier and recipient alike. Countries must be willing to make commitments which limit their actions as sovereign states. The important thing is that the commitments are accepted as being necessary, effective, and in the interests of the country making them. Where there are international norms for these matters (e.g., the NPT) such commitments are greatly facilitated.

The primary commitment expected of importing non-nuclear weapons countries is the renunciation of nuclear weapons. The preferable means for that is adherence to the NPT. For importing countries to make this commitment, countries with advanced nuclear power programs must offer compensating commitments and pledge to abide by them. Those commitments, and support for the expanded use of nuclear energy, should be viewed as non-proliferation tools by supplier coun-

tries. They can contribute to international stability by alleviating the energy shortages that cause international tension and conflict.

The supplier countries must make available assured supplies of uranium and other fuel cycle services to countries which cooperate in achieving non-proliferation goals. Assured supply necessarily implies stable and broadly accepted export controls. Assurance of supply also is strengthened by a diversity of suppliers making material and services available at fair and competitive prices.

Fuel cycle services should include enrichment, spent fuel reprocessing or storage, and the management of radioactive wastes. Where spent fuel is reprocessed, satisfactory arrangements must be made for the disposition of recovered plutonium. Recognizing the need for such arrangements, the countries participating in INFCE gave their support to the concept of International Plutonium Storage (IPS). The IPS concept has value in building confidence that plutonium is being stored securely. More importantly, implementation of the concept would give impetus to achieving an international consensus on acceptable plutonium utilization. As an element of that consensus, plutonium use should be confined to countries where it is industrially justified.

The principle of industrially justifiable projects could also be used to limit the spread of reprocessing facilities for both demonstration activities and commercial application. International consensus could be sought for countries to forgo the indigenous development of reprocessing plants until their nuclear power programs could justify such a facility. Such justification could be determined in the light of international guidelines.

For those countries postponing indigenous development of reprocessing facilities, arrangements might be made, on a schedule consistent with the user country's evolving industrial needs, for financial and technical participation in ownership and operation of reprocessing plants which meet the industrially justifiable criterion. This would prepare the user countries to apply such technology indigenously when their nuclear power programs reach a larger scale. Such a policy could eliminate the need for pilot or demonstration-sized reprocessing plants. Limiting the spread of reprocessing facilities would also simplify international inspection. Co-location of mixed-oxide fuel fabrication facilities at the site of reprocessing facilities would, in addition, limit the movement of separated plutonium.

For enrichment facilities, financial and management participation could be offered to user countries. Sharing of the technology could presently be accomplished only within existing classification constraints.

Revise Nuclear Export Procedures

The procedures established in the NNPA for licensing nuclear exports are complex and include many redundant control mechanisms which cause delay and misunderstanding among foreign customers. Certain provisions of the Act reflect attempts to give it flexibility and provide timely action, but in practice it has been inflexible, caused delays, and led to even greater uncertainty. Experience in issuing export licenses under the Act has only increased the perception of foreign customers that the U.S. is an uncertain and unreliable nuclear partner.

The agencies involved in export licensing have taken some action to streamline the process, and a few measures to improve licensing further are currently under consideration. However, the experience of nuclear export licensing has made plain a basic flaw in the structure that cannot be cured simply by further efforts to streamline the procedures. The flaw is that the NRC, an independent regulatory body, is not an appropriate agency for making what are essentially foreign policy decisions involving national security considerations. It lacks the functional competence to be the decision-maker on foreign policy issues and as found by both the Kemeny and Rogovin inquiries, NRC's role in the export process results in an undesirable diversion of agency focus and resources from its primary domestic safety mission.

Export decisions should be the responsibility of the President and those officials directly accountable to him. The Congress can, and should, perform the necessary policy review and oversight functions. For these reasons the President should transfer the NRC's nuclear export approval function, and other agencies' related functions, to the Department of State. The NRC would continue to make technical safeguards recommendations in the export approval process.

It is further important that the export licensing process substantially reduce, if not eliminate, the case-by-case approach to U.S. export approvals. Some progress has been made in this regard but further steps are needed and can be taken consistent with responsible non-proliferation policy. One major, and warranted initiative would be provision for life-of-reactor licensing of low enriched fuel and spare parts for countries which are in compliance with their non-proliferation commitments.

Improve Post-Export Controls — "Subsequent Arrangements"

One of the most significant and controversial changes made by the NNPA was the introduction of a comprehensive new regime governing disposition of U.S.-

origin nuclear materials in the user country's fuel cycle (primarily, U.S. approvals of spent fuel transfers, later reprocessing and the ultimate use of recovered plutonium). The procedural complexity of the system, the new ground rules imposed for approvals and their retroactive application, as well as the time consumed and uncertainties involved in the case-by-case approval process are particularly discordant elements in relationships with U.S. trading partners — including major allies of the United States whose non-proliferation credentials match our own.

If post-export controls are to remain a significant element of non-proliferation policy, we must establish generic criteria for their application. The existence of alternative supply sources makes it unlikely that others will accept long-term control over their fuel cycles based on case-by-case applications.

But even generic criteria will not suffice unless they are broadly acceptable to responsible recipient countries. INFCE has demonstrated that others, though responsive to proliferation concerns, are opposed to an approach which disregards what they perceive as vital energy security considerations. Accordingly, the NNPA should be revised to prescribe U.S. consideration of the legitimate energy policies and fuel cycle programs of affected countries, as well as proliferation concerns, in approving "subsequent arrangement" requests. Among other things, the present "timely warning" criterion has proven to be impractical. Workable standards that place the main emphasis on responsible international safeguards are needed.

Avoid Retroactive Standards

Finally, U.S. non-proliferation strategy, and the NNPA, must alleviate fears by our trading partners of unilateral changes in U.S. requirements. While it is not feasible to fore swear all change, the NNPA can provide that new requirements will be prospective in their application and that, where existing commitments are to be affected, changes will be preceded by consultation and that mutual agreement will be sought. Absent an assurance of this type, U.S. ability to obtain from other nations the substantial non-proliferation commitments which it seeks will be seriously weakened and the general credibility of this country's commitments gravely compromised.

Enhance the Value of the NPT

The Atoms-for-Peace program had as its bedrock U.S. technological leadership in peaceful nuclear uses and an active involvement in international cooperation and supply under effective safeguards. The fruits of the Atoms-for-Peace program, and cornerstones of U.S.

nonproliferation policy, have been the Nuclear Non-Proliferation Treaty and the International Atomic Energy Agency. Under the NPT, a non-nuclear weapons nation agrees not to acquire nuclear weapons from any source and to limit its use of special nuclear materials, including indigenous developments, to peaceful uses as verified by IAEA safeguards. In exchange it receives assistance from the nuclear weapons nations in developing nuclear power. This commitment by the U.S. and other nuclear supplier countries, which was emphasized in INFCE, is critical to the continued viability of the NPT. The failure of the signatory countries to approve a final communique at the 1980 NPT Review Conference is a sign of the fragile structure of the treaty. Every effort should be made to strengthen the NPT by making membership advantageous through the receipt of assistance for nuclear power development.

Strengthen the IAEA

The International Atomic Energy Agency has played an important role in developing and implementing safeguards. As safeguards are strengthened, the capabilities of the IAEA should be expanded, particularly to include continuous inspection in the application of safeguards to reprocessing and enrichment facilities. The U.S. and other nations should provide the support needed to so expand the IAEA's capabilities.

Technological advances, changing political conditions, and the spread of nuclear technology and materials should be taken into account in further improving safeguards systems and requirements. The effective vehicle for strengthening safeguards requirements is not unilateral action by one nation. Safeguards can only be strengthened by international cooperation, which gives due recognition to the legitimate interests of supplier and user nations and to existing commitments.

CONCLUSION

The United States has an important opportunity to influence the policies of other countries by cooperating with them in the development of nuclear power under appropriate safeguards. Our recommendations are directed to this end. They call for a viable nuclear export program which, in turn, requires that both current and prospective users view the U.S. as a reliable supplier — a tradition well established by the U.S. over a 20-year period up to 1977. A return to that tradition, and a reassertion of technological leadership by the U.S. in the peaceful uses of nuclear energy, will best serve this country's non-proliferation goals. The nuclear industry can, and is prepared to, make its contribution as a partner in that national undertaking.

APPENDIX I

THE WORLD NUCLEAR ENERGY SCENE

According to a recent AIEA review of commercial nuclear power programs outside the United States, 42 of the nations in the world have chosen to utilize nuclear power as an important energy source. Eight nations now have a larger percent of their operating electrical capacity in nuclear power than does the United States. In addition to 179 operating reactors outside the U.S., 160 reactors are under construction, 27 reactors are on order, and 242 reactors are currently planned. (See accompanying table) The need for this program was sharply spurred by the OPEC increases in the price of oil, the growing realization of dwindling supplies of fossil fuels, and the uncertainty of fuel supplies worldwide. Clearly, the expanding use of nuclear power outside the U.S. will continue, regardless of U.S. export policies.

At least six other nations are suppliers of reactors or reactor components and fabricated fuel. These suppliers are actively pursuing export orders. Further, a number

of additional nations are establishing their own indigenous supply capability and plan to seek export business.

Three countries and two multi-national organizations besides the U.S. already have commercial-scale uranium enrichment plants (France, USSR, China, URENCO and EURODIF), and an additional five countries are planning commercial enrichment plants (Japan, West Germany, South Africa, Brazil, and Australia). Commercial scale reprocessing facilities exist in seven countries outside the U.S. (UK, France, USSR, Belgium, West Germany, India, and Japan) and very likely China. In addition, there are laboratory or pilot scale reprocessing facilities in Argentina, Canada, Israel, Italy, Norway, Spain, and Yugoslavia.

These overseas commercial-scale activities in enrichment and reprocessing are being conducted without technical assistance from the U.S. and in some cases with processes developed outside the U.S. which may surpass comparable U.S. technology.

NUCLEAR GENERATING CAPACITY OUTSIDE THE UNITED STATES

	1979			1980		1985		1990		2000	
	MWe Installed	% of Capacity	% of Generation	MWe Installed	% of Capacity	MWe Installed	% of Capacity	MWe Installed	% of Capacity	MWe Installed	% of Capacity
Argentina	344	3.9	8.2	344	3.7	344	8.5	1,642	12.3	na	23.0
*Austria	0	0	0	0	0	na	na	na	na	na	na
*Belgium	1,667	16.0	21.8	1,667	16.0	5,427	39.0	na	na	na	na
Brazil	0	0	0	0	0	626	1.0	5,606	8.0	20,000	17.0
*Bulgaria	880	na	na	1,320	na	1,760	na	4,760	35.0	na	na
*Canada	5,498	7.6	9.4	5,498	8.0	10,347	10.5	14,502	13.0	na	na
Chile	0	0	0	0	0	0	0	600	15.0	na	na
China, People's Republic of	0	0	0	0	0	0	0	2,000-4,000	na	16,000	na
Cuba	0	0	0	0	0	880	na	1,320	na	na	na
*Czechoslovakia	552	na	na	992	na	4,952	17.0	10,952	32.1	18,952	50.0
*Denmark	0	0	0	0	0	0	0	0	0	na	na
Egypt, Arab Republic of	0	0	0	0	0	0	0	600	6.7	6,900	28.6
*Finland	1,080	10.0	16.5	2,160	20.0	2,160	20.0	3,160	25.0	na	na
France	8,330	15.0	17.0	13,000	21.0	38,200	43.0	66,300	56.0	na	85.0
*Germany, Democratic Republic of	1,400	na	na	1,400	na	5,360	na	9,000	na	na	50.0
*Germany, Federal Republic of	8,862	11.0	12.0	8,862	10.0	17,700	na	26,580	na	na	50.0
*Greece	0	0	0	0	0	0	0	600-900	5.0	na	na
*Hungary	0	0	0	0	0	1,760	na	4,760	10.0	10,000-12,000	48.0
India	596	2.5	na	796	na	1,676	4.0	2,116	4.5	6,000	6.0
*Indonesia	0	0	0	0	0	1,600	na	2,900	na	na	na
Israel	0	0	0	0	0	0	0	0	0	3,800	30.0
*Italy ⁽¹⁾	1,412	3.2	1.9	1,412	3.1	1,850	3.1	7,850	8.9	na	na
*Japan ⁽²⁾	14,952	12.0	13.3	14,952	11.8	30,000	16.8	53,000	22.9	78,000	28.2
*Korea, Republic of (South)	587	8.5	9.5	587	6.2	3,815	20.0	11,016	34.3	46,416	40.0
*Libya	0	0	0	0	0	0	0	na	na	na	na
*Mexico	0	0	0	0	0	1,308	5.0	na	na	21,308	25.0
*The Netherlands	505	3.3	6.7	505	3.3	505	2.7	1,505	7.3	3,505	17.7
Pakistan	125	na	na	na	na	725	na	na	na	na	na
*The Philippines, Republic of	0	0	0	0	0	620	10.5	620	7.2	1,240	6.7
*Poland	0	0	0	0	0	440	na	4,000	9.0	23,000	na
*Portugal	0	0	0	0	0	0	0	0	0	2,790	18.0
*Romania	0	0	0	0	0	440	na	3,960	20.0	na	na
South Africa, Republic of	0	0	0	0	0	1,844	7.0	na	na	na	na
Spain	1,100	3.7	6.4	1,100	3.7	7,475	17.7	13,425	24.9	30,000	40.0
*Sweden	3,700	14.4	21.8	3,700	na	8,380	28.0	9,430	27.0	na	na
*Switzerland	1,926	17.5	24.7	1,926	17.5	2,871	21.9	na	na	na	na
Taiwan (China)	1,272	16.6	15.5	2,163	na	4,928	31.0	na	na	na	na
*Thailand	0	0	0	0	0	0	0	900	10.0	na	na
Turkey	0	0	0	0	0	0	0	660	4.0	na	na
Union of Soviet Socialist Republics	9,905	4.3	na	10,505	na	34,135	10.0	90,000	25.0	na	33.0
United Kingdom ⁽³⁾	6,426	10.0	12.4	6,426	9.6	9,400	10.8	12,300-13,500	12.1-14.9	22,700-39,300	17.3-37.1
*Yugoslavia	0	0	0	0	0	632	na	na	na	na	na

*Non-nuclear weapons states party to the NPT.

(1) ... of capacity for 1985 and 1990 includes share of Super Phenix.

(2) Gross MWe used (excluding Fugen). 1979 figures for fiscal year April 1, 1979-March 31, 1980.

(3) 1979 figures for fiscal year April 5, 1979-April 4, 1980. Installed capacity projections for 1985, 1990 and 2000 allow for decommissioning some older reactors.

ATTACHMENT A

COMMITTEE ON INTERNATIONAL NUCLEAR POLICY

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June 24, 1981

WRITTEN STATEMENT OF S. JACOB SCHERR
ON BEHALF OF THE
NATURAL RESOURCES DEFENSE COUNCIL
SUBMITTED TO THE
SENATE GOVERNMENTAL AFFAIRS COMMITTEE,
SUBCOMMITTEE ON ENERGY, NUCLEAR PROLIFERATION,
AND GOVERNMENT PROCESSES,
CONCERNING U.S. NUCLEAR NON-PROLIFERATION POLICY

I am S. Jacob Scherr, an attorney with the Natural Resources Defense Council (NRDC), a public interest environmental protection organization with some 35,000 members in the United States and abroad. Since 1971, NRDC has been actively concerned about the hazards of nuclear power associated with the presence of nuclear-weapons-usable materials in the civilian fuel cycle. Beginning in 1974, we have focussed upon the problem of American nuclear exports and nuclear weapons proliferation. NRDC has submitted testimony to Congressional committees on several occasions, intervened in a number of Nuclear Regulatory Commission proceedings, and undertaken litigation in support of a strong, effective U.S. nuclear non-proliferation policy. I am very pleased to have this opportunity today to present our views on this matter to the Subcommittee.

The recent Israeli raid destroying a nuclear research reactor in Iraq brought the problem of nuclear weapons proliferation much closer to home for many Americans. For the first time, proliferation was no longer merely an abstraction or

- 2 -

a distant event of little consequence for our nation. A close American ally in a very volatile part of the world had used American-supplied weapons to destroy a nuclear reactor in another country. This was a drastic action taken by Israel against the perceived threat of Iraqi acquisition of the atomic bomb. We must face up to the fact that the existing system of bilateral and multilateral controls is too weak, too ambiguous to provide assurances to the U.S. and neighboring nations that non-weapons countries are not directing their "peaceful" nuclear programs to the future production of atomic weapons.

Inadequacies of IAEA Safeguards

The Senate Foreign Affairs Committee last week heard testimony from Mr. Robert Richter, an International Atomic Energy Agency (IAEA) inspector, detailing the severe limitations and inadequacies of the existing international safeguards system. The deficiencies of IAEA oversight of "peaceful" nuclear activities are not limited to Iraq nor are the concerns expressed by Mr. Richter new. In 1975, the U.S. General Accounting Office (GAO) issued a study entitled "Assessment of U.S. and International Controls Over the Peaceful Uses of Nuclear Energy."* The GAO found that:

- IAEA inspectors do not have unlimited access on their safeguards inspections, nor do they have the authority to seek out undeclared or clandestine nuclear facilities or stockpiles.

* GAO Report No. 10-76-60 (September 14, 1976).

- 3 -

- IAEA inspectors must be accredited by the nation in which they are to inspect and that nation has the right to reject any inspector. This accreditation process has been used by some countries to hamper safeguards implementation.
- Inspectors face difficulties in carrying out verifications of nuclear material inventories because of differences in facility, national, and international systems; slowness in reporting the receipt or export of nuclear materials; and the inaccuracy or incompleteness of material accountancy records.
- Inspectors do not have the technical equipment and procedures to carry out effective physical measures of nuclear material inventories.
- Some inspectors lack practical experience and sufficient training. Recruitment of a skilled inspection staff is hampered by low salaries and geographic distribution requirements.
- The IAEA is facing problems in securing sufficient funding to match its increased safeguards responsibilities.
- IAEA safeguards agreements with non-NPT countries preclude the use of safeguarded material and equipment for "furthering any military purposes", but some countries interpret this phrase as permitting the development of "peaceful" nuclear explosives.
- Even if the IAEA detected and disclosed a diversion in violation of a safeguards agreement, the prescribed sanctions are very limited and perhaps meaningless. The IAEA can only order a recall of IAEA-sponsored material and technical assistance and suspend membership rights.

At the time, the IAEA had just 40 inspectors to safeguard 400 facilities around the world. The GAO stated its belief that

"the United States may be relying on international safeguards which were not being adequately carried out."

The response of the United States to the GAO report and growing doubts about the effectiveness of IAEA safeguards was to increase American financial and technical support to the agency. In May 1981, the GAO reported that while efforts had been made to address some of the safeguard deficiencies noted in its 1976 study,

"the magnitude of IAEA safeguards responsibilities have outpaced these efforts and the IAEA continues to encounter the same basic problems"*

In 1980, the IAEA had about 100 fully trained inspectors. However, the number of facilities covered by safeguards had grown to 715 and is expected to increase to 779 by 1983. The IAEA system must be strengthened, not just by increasing manpower or the sophistication of technical safeguards devices. The United States should take the initiative in seeking a full reexamination of the IAEA system.

Need For NRC To Assure Adequacy
of IAEA Safeguards Implementation

A major problem regarding the IAEA remains the excessive secrecy surrounding its safeguards activities. In 1975, the

* "The Nuclear Non-Proliferation Act of 1978 Should be Selectively Modified", GAO Report No. OCG-81-2, at 47 (May 21, 1981).

GAO stated that the U.S. does not have enough information to evaluate IAEA safeguards effectiveness. In 1977, following the issuance of the IAEA's first Safeguards Implementation Report (SIR), the NRC's Office of Nuclear Material Safeguards and Security refused to continue to certify the adequacy of IAEA safeguards covering nuclear materials and equipment proposed to be licensed for export.* While the NRC has pressured the State Department for more country-specific information about IAEA safeguards implementation, the NRC continues to rely primarily on blind faith in the IAEA system.

Pursuant to the Nuclear Non-Proliferation Act of 1978 (NNPA) the NRC must determine that a proposed nuclear export meets the criteria set out in Section 127. Criterion 1 states that:

IAEA safeguards as required by Article III(2) of the [Nuclear Non-Proliferation] Treaty will be applied with respect to any such material or facilities proposed to be exported to any such material or facilities previously exported and subject to the applicable agreement for cooperation, and to any special nuclear material used in or produced through the use thereof.

The precise issue of whether the NNPA requires the NRC to make an independent assessment of the adequacy of those

* See "NRC, Safety Experts Split on International Safeguards", Washington Post, January 17, 1978, at A12. This and subsequent SIRs have been classified.

safeguards was addressed during Senator floor consideration of the Section 126(a)(2) of the NNPA. Introduced as an amendment to S. 897 by Senator McClure, this section provides that the Commission is neither required to conduct nor prohibited from conducting country or site specific visitations in its consideration of the application of IAEA safeguards. The amendment was accepted only after agreement between Senators McClure, Glenn and Percy that the Commission is required to independently assess the adequacy of IAEA safeguards. Summarizing the discussion of the amendment, Senator Percy said:

"It is not really a question of whether the NRC independently will assess the adequacy of safeguards. The question is really how they will do it."*

As noted in the recent GAO report on the NNPA, the NRC Commissioners have failed to resolve this question. It is our view that the time has long past where mere assertions and fragmentary information as to the effectiveness of IAEA safeguards will suffice. We believe that the NRC must be in a position to assure the Congress and the American public that IAEA safeguards are being implemented adequately as to U.S. nuclear exports. We agree with the GAO that the NRC's responsibility in this regard must be clarified. It is our view, given the urgency of the proliferation problem, that the

* Congressional Record, February 7, 1978, at S. 1464.

NRC should suspend licensing of nuclear exports until it is provided with enough data to make a reasoned judgement as to the adequacy or inadequacy of IAEA safeguards.

Need To Halt International Commerce In
Nuclear Weapons-Usable Materials

Of particular concern is the increasing presence in the civilian nuclear fuel cycle of weapons grade materials, such as plutonium and highly-enriched uranium (HEU). A non-nuclear weapons country in possession of these materials are just a few weeks or months away from acquiring atomic weapons. With such short lead time, the concept of "timely warning" of a diversion of "peaceful" nuclear activities to the manufacture of bombs -- a concept which is central to IAEA safeguards and our non-proliferation policy -- becomes totally meaningless. Less than 20 kg. of either plutonium or HEU is required to make a small bomb. Yet the IAEA estimates that by 1986 it will have under its safeguards some 250 metric tons of plutonium -- separated and unseparated -- and 15.6 metric tons of HEU. The United States must take steps now to obtain international agreement on a moratorium on the movement of weapons-usable nuclear materials in civilian commerce, as well as the tightening up of existing supplier guidelines as to the export of technology and equipment needed for uranium enrichment and plutonium separation or reprocessing.

NRDC remains very skeptical of proposals for an international plutonium storage (IPS) regime as a means for reducing the grave proliferation dangers posed by plutonium use. We have serious doubts about its feasibility. We are concerned that discussions about the IPS will divert attention from the much more important task of overhauling the existing IAEA safeguards system. Also the IPS would legitimize the reprocessing and stockpiling of plutonium in non-weapons states.

NRDC's Opposition to Commercial Breeder Reactor Development

NRDC remains opposed to the development of the commercial breeder reactor.* The Administration hopes to step up DOE's breeder program with the construction of the Clinch River demonstration breeder reactor (CRBR) in Tennessee. This is virtually the only energy R&D program which has not been cut by the Administration and is indeed proposed to be increased. Each commercial-sized breeder would be fueled with 4000 kg of plutonium, enough for several hundred bombs. The continued drift towards a plutonium economy must be reversed or we will face a world in which nuclear weapons will become a readily available option for scores of nations.

* For a detailed exposition of NRDC's position on the U.S. breeder program, see Testimony of Thomas B. Cochran, Ph.D., before the House Science and Technology Subcommittee on Energy Research and Production, March 4, 1981.

Aside from the proliferation dangers, the development now of the breeder reactor cannot be justified on economic grounds. Many of the assumptions underlying the start of a \$20 billion U.S. breeder R&D program a decade ago have changed or proven to be false. Based on the French experience, a commercial breeder will cost over twice as much as the present generation of light water reactors (LWRs). The price of uranium would have to increase five-to-tenfold to \$150-\$300/lb before breeders would be economical. In fact, the worldwide decline in nuclear power plant construction and the discovery of increasing reserves of uranium are expected to force uranium prices lower. If the breeder could be perfected technically, the point at which there would be no further need for "fresh" nuclear fuel would not occur until the middle of the next century. It would be far cheaper to stockpile uranium and improve the efficiency of existing LWRs.

The plutonium breeder will not reduce our dependence on foreign oil. Today only 10% of our electricity is generated in oil-fired plants, which are often older and smaller facilities used to meet peak demands. The generation of electricity with oil will be further reduced by the conversion of existing plants to coal and by the replacement of older plants with new ones using other fuels. New baseload nuclear plants may compete with coal, but not oil.

NRDC is not alone in its opposition to the breeder, especially the Federal Government's support of the CRBR. The economic case against this massive boondoggle was forcefully made by David Stockman when he was a Member of Congress in 1977. While other countries may continue to waste their taxpayers' money on what might be labeled the "nuclear Concorde", this is surely not a valid justification for the U.S. program. Indeed, France, Germany, and the Netherlands may be having second thoughts about breeder development in light of the rapidly accelerating costs and changes in energy projections. Turning our back on the breeder is a matter of sound economics and nuclear non-proliferation policy.

Need To Reassert American Leadership

The United States must now reassert its leadership on curbing the spread of atomic weaponry. Yet there have been indications from the Reagan Administration of a return to "business as usual." For twenty years, we pursued a supply side policy on proliferation. Until the mid-seventies, the United States aggressively promoted and in most cases financed the transfers of nuclear technology, equipment, and materials abroad. Non-proliferation remained a secondary foreign policy concern, often giving way to the geopolitical problems or commercial interests of the day. The result of the "Atoms for Peace" policy is that one nation has exploded an atomic bomb using "peaceful" nuclear materials and assistance and a number

- 11 -

of other nations have already acquired or are close to acquiring nuclear weapons capability. The failure of this policy, with its overriding emphasis on reliability of supply, led to the passage of the NNPA of 1978.

It is our view that the NNPA provides a solid framework for U.S. efforts to reverse the drift towards a "nuclear-armed crowd". It should not be weakened. Of fundamental importance is the preservation of the role of the NRC under the NNPA as an independent check on the Executive Branch to help assure that all U.S. nuclear exports are subject to effective safeguards and other controls.

In conclusion, Israel employed conventional bombs to wreck the Iraqi nuclear reactor. I do hope that the United States heeds this warning and does not wait until one supposedly non-weapons country uses atomic bombs against another. Nuclear proliferation is like a cancer which, if unchecked, will destroy our national security. Its cure will require bold new American initiatives aimed at strengthening international resolve to control proliferation. I believe that we have no other choice.

Senator PERCY. The hearing is adjourned.

[Whereupon, at 1 p.m., the subcommittee was recessed, to reconvene subject to the call of the Chair.]

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

IRAQ, ISRAEL AND THE MIDDLE EAST PROLIFERATION PROBLEM

A report prepared for the Arms Control Association

by

Charles N. Van Doren

(Former Assistant Director for Non-Proliferation,
United States Arms Control and Disarmament Agency)

June 25, 1981

(Not for public release until June 29, 1981)

C O N T E N T S

INTRODUCTION	1
I. Existing Commitments and Access to Weapons-Usable Material	2
A. Iraq	2
B. Israel	11
C. Other Relevant Countries	17
II. Pre-emptive Strikes	25
III. Review of Non-Proliferation Approaches in Light of These Cases	26
A. Continued Significance of the Non-Proliferation Treaty	26
B. Continued Importance and Utility of IAEA Safeguards	31
C. Prudent Common Nuclear Export Policies	34
D. Test Ban Treaties	35
E. Proposals for Nuclear - Weapon-Free Zones	38
F. International Conventions Relating to Attacks on Nuclear Installations	40
CONCLUSION	43
Appendix A - Extract from Statement by Iraqi President Saddam Hussein during Cabinet Meeting June 23, 1981 (FBIS)	44
Appendix B - Israeli Description of Pakistan's Nuclear Program (Extract from letter dated 27 May, 1981 from the Permanent Representative of Israel to the United Nations)	45
Appendix C - U.N. General Assembly Resolutions on establishment of Nuclear-Weapon-Free Zones in the Middle East (35/147) and South Asia (35/148)	49

IRAQ, ISRAEL AND THE MIDDLE EAST PROLIFERATION PROBLEMINTRODUCTION

The bombing of the large Iraqi research reactor by Israel has led to many confusing reports on the facts and fragmentary comments on its implications for non-proliferation efforts. It is the purpose of this report to provide a clear, objective summation of published information on the nuclear capabilities and undertakings of Iraq, Israel and other relevant countries, and to discuss the various approaches to dealing with proliferation in the light of such information.

Before turning to specific countries, it should be recalled that the following are necessary to make a nuclear weapon:

- (a) a decision to do so, and either the absence of international commitments not to do so or a willingness to break or terminate such international commitments;
- (b) the knowledge, skill and manufacturing capabilities needed to make a nuclear explosive device; and
- (c) access to sufficient quantities of highly enriched uranium (HEU) or separated plutonium.

Since item (c) is usually considered the pacing item, it is the principal focus of Part I of this study. Existing and proposed international commitments designed to affect item (a) are touched on in Part I and discussed at greater length in Part III. Part II offers some brief observations on pre-emptive strikes.

I. Existing Commitments and Access to Weapons-Usable Material

A. IRAQ

Iraq is a party to the Non-Proliferation Treaty (NPT), which constitutes a binding international obligation not to manufacture or acquire nuclear weapons or other nuclear explosive devices. It is also a party to the Limited Test Ban Treaty and has in effect an agreement with the International Atomic Energy Agency (IAEA) providing for safeguards on all its peaceful nuclear activities.* My research has uncovered no evidence of actual Iraqi efforts to develop or manufacture a nuclear explosive device, as distinguished from its acquisition of materials and equipment that would in time have been capable of yielding enough special nuclear material to do so. It is these capabilities that are analyzed in the answers to the questions below. Such answers do not attempt to draw any conclusions as to the intentions of Iraq, which is by no means the only country having such capabilities.** But since the bombing, Iraqi President Saddam Hussein has expressed the belief that "irrespective of Iraq's intentions

* Its bilateral agreement with France is believed to include a guaranty independent of the NPT that the nuclear materials and equipment acquired from France, and any special nuclear material derived from their use, will be used for peaceful, non-explosive purposes, and Iraq has agreed to accept IAEA safeguards to verify compliance with this bilateral guaranty. (IAEA-INF/CIRC/172/Add. 1).

** For example, several of the major industrial countries have ready access to large quantities of HEU and separated plutonium.

and of its present or future capabilities, countries should help the Arabs in one way or another to acquire atomic bombs to confront the actual Israeli atomic bombs, not to champion the Arabs and not to fuel war, but to safeguard and achieve peace."* (See Appendix A hereto)

Iraq's nuclear facilities are located at the Tuwaitha Research Center, about 10 miles from Baghdad. The largest facility (the French-supplied 40 MW_{th} OSIRAK research reactor, also known as TAMUZ-1), which had not yet become operational, was destroyed by the bombing. The other principal facilities at the site are:

- a very small (approximately .5MW_{th} French-supplied ISIS research reactor (also known as TAMUZ-2) associated with the OSIRAK reactor
- a small (2-5 MW_{th}) research reactor supplied by the Soviet Union in 1967
- separate storage where natural and depleted uranium are stored
- some large hot cells and other research facilities supplied by Italy

None of these appears to have been seriously damaged. In addition to the fuel for the reactors, the Iraqis had procured 100 tons of natural uranium (U₃O₈) from Portugal, and another

* Statement to Iraqi Cabinet meeting June 23, 1981 (as reported and translated by the Foreign Broadcast Information Service), the most pertinent portion of which is set forth in Appendix A.

100 tons from Niger*, the intended use of which is not clear. Under Iraq's safeguards agreement with the IAEA, notification of receipt of this material was required to be given to the IAEA, and there appears to be no indication that this was not done.

The following questions and answers bring out the other facts pertinent to the capabilities of these facilities to yield weapons-usable material, as well as a few other issues that have been raised in the public discussion of the bombing.

- (1) Could the Iraqis have obtained enough HEU for a nuclear weapon from the HEU fuel that they received for the ISIS and OSIRAK reactors?

The amount of HEU that had been delivered to date (12 kgs) would not have been enough to enable Iraq to make a nuclear explosive. Moreover, it had been irradiated in the ISIS reactor as soon as it arrived in Iraq, and thus would not be usable in a nuclear explosive without first being reprocessed. While the large hot cells at the facility were large enough to permit reprocessing, there appears to be no evidence that they contained all the requisite reprocessing equipment (mixer-settlers, etc.).**

* As reported in Niger's Journal Officiel.

** In his June 19 testimony before the Senate Foreign Relations Committee, Mr. Roger Richter asserted that they did contain such equipment, but the basis on which he reached this conclusion is not known. He also testified that he had not seen the hot cells.

After the reactor had been operated for some time, the total inventory of HEU on site could have been as high as 35-60 kg, consisting of some fuel awaiting insertion in the reactor, some in the reactor, and some in the form of discharged fuel (which would have contained somewhat less uranium than when it was fresh and have an enrichment of about 80% - still usable in weapons if reprocessed). The aggregate of these three quantities would be more than sufficient to make a bomb, but the following observations deal with each of the three components of this aggregate:

- If any fresh fuel were left unirradiated, it could be quickly and readily put into a form usable for nuclear weapons without reprocessing. If, however, it were irradiated on arrival, its accessibility would be reduced as noted with respect to the initial shipment of 12 kgs.
- While in the reactor, the HEU would not be accessible.
- After removal from the reactor, the HEU could be separated only by reprocessing (though this could be done more readily and require less throughput than the reprocessing of plutonium).

If arrangements had been made for the prompt return to France of the HEU in the third category (which remained a distinct possibility) it would not have been available for reprocessing.

The location and form of the HEU was physically verified by the IAEA in January, 1981, and had been scheduled for

reverification by an IAEA inspection in June (which I understand was carried out after the bombing) and was clearly known by the French technicians who, under an arrangement recently revealed by the French* were to be intimately involved in the operation of the research reactor until 1989.

Reprocessing of the HEU could not legally be pursued without notice to the IAEA, with an opportunity for the IAEA to review the design of the reprocessing facility in advance, and the continuation of safeguards on any HEU or plutonium recovered therefrom.** Moreover, the removal of the HEU from the reactor would quickly have become known to the French technicians.

(2) Could the Iraqis have obtained enough plutonium for a bomb through the operation of the reactor?

Plutonium production of three kinds would be at least theoretically possible after the reactor had become operational (which had not yet occurred):

- First, tiny quantities of plutonium would be produced in the fuel itself, but this would be only a small fraction of a kilogram per year (as contrasted with the 5-10 kgs required for a bomb).

- Second, the empty channels in the reactor core could be filled with natural uranium (after conversion to UO_2 or other suitable form, and fabrication) and plutonium produced through its bombardment with the reactor's neutrons. Theoretically,

*As reported in The Energy Daily, June 19, 1981.

**See Iraq's NPT Safeguards Agreement (IAEA-INFCIRC/172).

this technique might have produced enough material for a bomb in 1-3 years, but it would affect the operation of the reactor, require the use of tons of uranium* in hundreds of specially prepared targets (only relatively small numbers of which could be inserted during any given period), the cooling of the plutonium in the spent fuel pond where it could be readily observed, the use of special casks for its removal from the cooling pond, and reprocessing. It is highly improbable that all this could escape the notice of both the IAEA inspectors and the French technicians. In addition to the need for reprocessing equipment, this scenario would bring into play the legal obligations to the IAEA described in the final paragraph of the answer to question (1) above.

- Third, a "blanket" of natural uranium oxide could be placed around the reactor core to produce plutonium in the blanket. While this approach could theoretically produce as much plutonium as the second method, it would produce considerable heat, and special measures -- highly visible both to the IAEA inspectors and to the French technicians -- would have to be taken to provide for the removal of this heat. Moreover, the plutonium produced in the blanket would have to be reprocessed, presenting the same problems as under the second method.

If misuse of the reactor became known to the French, they could cease further fuel deliveries, thus shutting down the reactor and precluding its further misuse.

*See testimony of Albert Carnesale before the Subcommittees of the House Committee on Foreign Affairs on June 25, 1981. The opening statement of this witness gave an incisive analysis of the central issues involved in assessing the bombing of Osirak.

(3) What was the nature of the "secret room" under the reactor?

The IAEA has stated that "The production of plutonium in fertile elements located underneath the reactor is practically impossible since the core is placed on a thick concrete slab which in turn is lined with a heavy steel plate. These provide shielding to permit maintenance work on control element drives located in a vault below the reactor to be carried out."* There appears to be no evidence that either the vault below the reactor or any other shielded, enclosed space in it was equipped or intended for reprocessing or other clandestine purposes, and the French technicians would undoubtedly be aware of the nature of their use.

(4) Could lower enriched uranium fuel be used in the reactor?

Yes; the reactor was designed to accommodate the "caramel" fuel, which the French have been developing. This fuel is enriched to less than 10% and could not be used for nuclear explosives. While the first few scheduled fuel shipments were not of this type (in part because the fuel had not yet been fully tested) it remained a possibility for later shipments, and the negotiations for the reconstruction of the reactor may provide that any further fuel shipments will be of caramel fuel.

(5) What about the two other small reactors on the site?

The ISIS reactor supplied by the French was very small

*IAEA Press Release PR81/10 - June 12, 1981.

(about .5 MW_{th}) and incapable of producing significant quantities of plutonium over many decades. Its fuel load was 12 kg of 93% enriched uranium -- interchangeable with the fuel for OSIRAK. In fact, the ISIS reactor was used to irradiate the initial fuel shipment for the OSIRAK reactor.

The research reactor supplied by the Soviets, which became operational in 1967, is a 2 MW_{th} pool-type reactor, using fuel with 10%, 36% and 80% enriched uranium. The recovery of HEU from the first two types of fuel would be impossible, and the quantities of 80% enriched uranium involved are understood to be quite small. Moreover, after use in the reactor the enrichment level would be lower, and the uranium could only be recovered through reprocessing. The use of this reactor to produce plutonium would yield less than a kilogram per year. To recover either the plutonium or the relatively high enriched uranium that might be left in part of the spent fuel, reprocessing would be necessary, which would present the problems cited in the answer to question (1) above. Moreover, reprocessing would be precluded if the Soviets followed their usual practice of requiring the return of spent fuel.

The Soviet reactor continues to be under IAEA safeguards, and a facility attachment spelling out in detail the reports, records and access required has been negotiated and is in force.

(6) What about the 200 tons of U₃O₈?

As stated above, the intended use of these imports is not clear. It is conceivable that some of it could be for the

purposes described in the answer to question (2) above, which would require its fabrication into forms suitable for insertion in the reactor.* It is under IAEA safeguards in the sense that its receipt was required to be reported to the IAEA, which was also required to be notified if it was upgraded in form. But it was not subject to routine safeguards inspections before such upgrading.

(7) What would have been the effect of bombing the reactor after it had commenced operating?

If the reactor had become operational and was hit in such a way as to cause the release to the atmosphere of radioactive materials and gases, the environmental and health and safety consequences would clearly have been worse and a source of some concern. The number of assumptions required to quantify the likely impact on Baghdad, and the number of uncertainties involved, are illustrated in the Congressional Research Service paper on the subject made a part of the record of the Senate Foreign Relations Committee hearings on June 19. That paper concluded that it would be most unlikely for an attack with conventional bombs upon the reactor to have caused lethal exposures to radioactivity in Baghdad, although some people at the reactor site might receive some exposure.

(8) Does Iraq have delivery capabilities for nuclear weapons?

It does not currently have nuclear-capable missiles, but may have some Soviet and French supplied aircraft that could be made capable of delivering nuclear weapons.

*Or it might have been acquired with a view to subsequent use for fuel in a power reactor, which Iraq reportedly has shown interest in acquiring.

General Comments - The OSIRAK reactor, its fuel, the import of large quantities of U_3O_8 , the large hot cells at the site, and reports that Iraq was considering acquisition of a natural-uranium-fueled reactor capable of producing substantial quantities of plutonium, provided some basis for concern. Precautions such as the irradiation of the fresh fuel on its arrival and the arrangement for the intimate involvement of French technicians in the operation of the OSIRAK reactor until 1989, as well as the obligations of Iraq under the NPT and its NPT safeguards agreement and the back-up agreement on safeguards, were factors tending to alleviate such concerns. But at least a theoretical risk remained that these legal obligations could be violated, abrogated or terminated and the IAEA inspectors and French technicians denied access to the facility at some point after it becomes operational.*

B. ISRAEL

Israel is a non-party to the NPT, has not accepted IAEA

* After the outbreak of the war with Iran, there was a period when the Iraqis made clear to the IAEA that it would not be feasible for IAEA inspectors to visit the facility (although no visit had been planned for that period); and it is also understood that at least some of the French technicians withdrew to Baghdad for a while but kept in touch with the facility operators. But the French technicians soon returned to the site, and the IAEA carried out a safeguards inspection in January 1981. Another safeguards inspection was scheduled for June 1981, and was in fact carried out after the bombing.

safeguards on some of its principal nuclear activities,* but is a party to the Limited Test Ban Treaty. It has for many years had a number of highly trained nuclear physicists and engineers. Its nuclear facilities consist of a safeguarded U.S.-supplied research reactor (IRR-1) and the unsafeguarded facilities at Dimona, including a French-supplied research reactor (IRR-2). These facilities are more fully discussed below, and illustrate the difference between a nuclear facility that is subject to international commitments and safeguards and those that are not.

In 1968, Mr. Levi Eshkol is reported to have said that Israel knew how to make a nuclear weapon but from there it was a long way to an application.** In an interview in 1969, Prime Minister Golda Meir said "Israel has no bomb, Israel has no intention of using nuclear bombs."*** The official declaratory policy of Israel for many years has been that it will

* Israel has complained that it cannot expect non-discriminatory treatment by the IAEA. No Israelis are on the IAEA staff. At the June 1981 meeting of the IAEA Board of Governors a resolution was passed recommending the termination of technical assistance to Israel by the IAEA and further recommending that the General Conference of the IAEA (which meets in September) consider the implications of Israel's bombing of the Iraqi reactor, including the question of whether Israel should be suspended from the rights and privileges of IAEA membership. Even if the General Conference took such action, the rights of the Agency under its existing safeguards agreement with Israel would continue in force.

** SIPRI, The Near-Nuclear Countries and the NPT, p. 30, citing Neue Zürcher Zeitung, 5 October 1968.

*** Id. at pp. 29-30, citing International Herald Tribune, 10-11 May, 1969.

not be the first to introduce nuclear weapons into the Middle East. Most recently, former Israeli Defense Minister Moshe Dayan is reported to have said "We don't have any atomic bomb now. But we have the capacity, we can do that in a short time. We are not going to be the first ones to introduce nuclear weapons, and if the Arabs are willing to introduce nuclear weapons into the Middle East, then Israel should not be too late in having nuclear weapons too."* He is also reported by the same source to have said that he did not think Israel should exploit its capacity to produce nuclear weapons unless its enemies did so, saying "We should not be the first one, but we shouldn't be too late." For Israel's proposal of a Middle East Nuclear Free Zone, see Part III.E. below. A pending United Nations study of Israel's nuclear program is scheduled to be submitted to the General Assembly in the fall of 1981.

The IRR-1 Reactor - This 5 MW_{th} reactor became operational in 1960. It uses highly enriched uranium fuel, the last delivery of which took place before 1977, when the agreement for cooperation with the United States expired. The aggregate amount of fuel that had been delivered as of December 31, 1980 was 31.57 kg of uranium enriched to 89.4%.* While this amount would theoretically be sufficient to make one or even two bombs,

- most (if not all) of it has been irradiated in the reactor, thus lowering its enrichment somewhat, increasing the quantity necessary to make a bomb,

* New York Times, June 25, 1981, p. 1.

** Department of Energy, NMIS Report I-29, page 19.

- 14 -

- and making it recoverable only by reprocessing.
- Israel is also obligated by a continuing guaranty, explicitly surviving the expiration of the agreement for cooperation, that it will not use the material or equipment supplied under the agreement for cooperation, or any special nuclear material produced through the use thereof, "for atomic weapons, or for research on or development of atomic weapons, or for any other military purpose,"* and has confirmed that this precludes its use in so-called "peaceful" nuclear explosives.**
 - All material or equipment supplied under the agreement, and any special nuclear material produced through its use, is also covered by a trilateral safeguards agreement between the United States, Israel and the IAEA, under which Israel has agreed not to use them in such a way as to further any military purpose and has agreed that this precludes its use for the manufacture of any nuclear explosive device.***
 - The agreement with the United States under which the fuel was furnished provided that it would not be reprocessed or otherwise altered in form or content without U.S. consent.****

* TIAS 3311, as amended and as extended by TIAS 8557 (1977).

** Note from the Embassy of Israel dated 13 January, 1975, appended to TIAS 8019.

*** TIAS 8051, as extended by TIAS 8554 (1977).

**** TIAS 4407, Art. II.E.

- The IAEA has periodically checked on the continued presence of this material in the form of spent fuel elements at the reactor site. Under the applicable Agency guidelines, the inventory cited above would permit a maximum frequency of 5 or 6 routine inspections per year, and the Agency has the additional right to carry out special inspections if (a) the study of a report indicates that such inspection is desirable or (b) any unforeseen circumstance requires immediate action.* In practice the Agency does not inspect the facility as frequently as the maximum stated above.

The Dimona Reactor - This 25 MW_{th} research reactor became operational at the end of 1963. Since it is not under safeguards, there is no definitive information on whether the reactor has or has not been upgraded, at what rate and in what manner it has been operated, and consequently how much plutonium may have been produced in its spent fuel or otherwise. Unclassified estimates of how much plutonium it may have produced range up to 10 kg per year.**

* IAEA-INF/CIRC/66/Rav.2, secs. 57, 53, made applicable to this reactor and its fuel by TIAS 8051.

** Nuclear Proliferation Factbook, Joint Committee Print 96th Cong., 2d. Sess (1980), p. 412

To be used in a nuclear explosive, the plutonium would have to be reprocessed. If all the spent fuel in the maximum estimate were reprocessed, it would yield enough material for over 20 weapons.

Reprocessing Capability - As of December 31, 1978, SIPRI listed among the world's small scale reprocessing plants and laboratory scale reprocessing facilities, a facility at Dimona, Israel, the status of which it reported as unknown.* The existence of an unsafeguarded pilot reprocessing facility in Israel is also reported in IAEA Bulletin, Vol. 19, Oct. 1977, p. 4.

Other Possible Nuclear Materials - Despite a number of investigations, it has never been definitively established what became of over 200 pounds of weapons-grade HEU that could not be accounted for at a fuel fabrication facility in Appollo, Pennsylvania, in the mid-sixties. But some believe that it ended up in Israel (e.g., April 27 ABC TV documentary entitled "Near Armageddon", which also evidenced a belief that a missing ship-load of U_3O_8 from Western Europe may have ended up in Israel). In either case, if the material is in Israel it is not under safeguards.

Delivery Capabilities - Israel has missiles that are dual capable -- meaning that it would be physically possible to substitute

* SIPRI, Nuclear Energy and Nuclear Weapons Proliferation (1979), p. 319; reprinted in Nuclear Proliferation Fact-book (Joint Committee Print, 96th Cong. 2d Sess. (1980).

- 17 -

a nuclear warhead for the conventional explosive payload which they currently carry. It also has aircraft that could be made capable of delivering nuclear weapons.

General Comment - It is generally believed that if Israel does not now possess a small arsenal of nuclear weapons,* it could quickly make them.

C. Other Relevant Countries

In a letter to the U.N. Secretary-General dated May 27, 1981, the Government of Israel pointed out its perception of the proliferation risks posed by Pakistan, which (like Israel) is not a party to the NPT and has not accepted IAEA safeguards on some of its principal nuclear activities and (unlike Israel) has not ratified the Limited Test Ban Treaty. The pertinent portion of this letter is attached as Appendix B hereto. Public testimony by U.S. Government officials has made clear that Pakistan is building an unsafeguarded uranium enrichment facility that bears no relationship to the present needs of its civil nuclear program; that it is building a chemical reprocessing facility that is currently unsafeguarded; and that there is a substantial risk that it might make and test a nuclear explosive device within the next year or two. In connection with

* There was a widely reported unofficial statement in the mid-seventies by Mr. Carl Duckett, then a Deputy Director of the CIA, expressing his belief that Israel had 10-20 weapons. Mr. Duckett was questioned on this subject in the April 27, 1981 ABC TV News Closeup "Near Armageddon: The Spread of Nuclear Weapons in the Middle East." But see recent statement by Moshe Dayan quoted in the text above. The present author does not know which is correct.

the acquisition of the enrichment facility, the United States cut off economic and military aid to Pakistan several years ago, as required by Section 670 of the Foreign Assistance Act unless the President certifies that he has "received reliable assurances that the country in question will not acquire or develop nuclear weapons or assist other nations in doing so." (This section is currently in the process of revision, but not the related Section 669 providing for such a cut-off upon import of a reprocessing plant or detonation of a nuclear explosive device).*

But the Pakistani program cannot be fairly considered in isolation from the Indian program. India, which is also a non-party to the NPT and has refused to accept IAEA safeguards on major parts of its program, (though it is a party to the Limited Test Ban Treaty) is the only state discussed in this report that is known to have detonated a nuclear explosive device. While former Prime Minister Desai appears to have terminated Indian's nuclear explosive program and no further explosions have been carried out, it is by no means clear that Prime Minister Gandhi (who ordered the 1974 test) will not revive it, especially in light of the developments in Pakistan. India not only has unsafeguarded research reactors capable of producing plutonium, but also two reprocessing

* It is important not to weaken statutory criteria for Presidential overrides in the case of nuclear detonations.

plants -- one wholly unsafeguarded at Trombay (which was the facility that produced the initial Indian bomb from research reactor fuel), and another near the site of the Tarapur reactors, which would be safeguarded only when processing safeguarded spent fuel. Thus there is no question that India has enough unsafeguarded weapons-usable material to make several more nuclear explosives, and has a demonstrated capability to do so.

The Indians do not view their nuclear status only in relation to Pakistan. They point out that the People's Republic of China, a contiguous state with which they have had hostilities, is already a nuclear weapon state.

For discussion of proposals for a South Asian Nuclear Free Zone, see Sect. III.E. below.

Another relevant country is Libya, which is a party to the NPT and the Limited Test Ban Treaty and has entered into a safeguards agreement with the IAEA providing for safeguards on all its peaceful nuclear activities.* Yet Libya's current leader, Col. Qaddafi, has nevertheless made no secret of his desire to acquire nuclear weapons. His efforts to date have been unsuccessful. But it is a sobering fact that other

*This means in effect all of its nuclear activities, since (1) the NPT precludes explosive military uses, (2) Libya is entirely dependent on imports for its nuclear program, and (3) no exporter has, or seems likely to, supply it with materials or equipment for non-explosive military uses (such as naval propulsion).

countries in this study that are not parties to the NPT would be under no legal inhibitions against selling him weapons-usable materials. (NPT parties would at least have to consider whether such a sale, in the circumstances, would be consistent with the objectives of the NPT and would have a duty to ensure that any nuclear exports they made to Libya were in fact subjected to safeguards under Libya's NPT safeguards agreement). For non-NPT parties, reliance must be placed on their interests and good judgment. With respect to Libya's own nuclear program, it has acquired natural uranium from Niger (some of which may have been shipped to Pakistan); it has acquired a small research reactor from the Soviet Union (a 5 MW_{th} reactor involving a total on-site inventory of about 10 kg of 80% enriched uranium, which would not be sufficient to make a bomb; this reactor would be incapable of producing significant amounts of plutonium in decades); and it has been negotiating with the Soviet Union for some time with respect to the acquisition of a nuclear power reactor. It is not known to have any reprocessing facilities of its own, and it is to be hoped that the Soviets will follow their usual practice of insisting upon the return of any spent fuel, at least from the power reactor if it is built.

Yet another relevant state is Iran (currently at war with Iraq), which is also a party to the Non-Proliferation Treaty and the Limited Test Ban Treaty and has concluded an IAEA safeguards agreement covering

all its peaceful nuclear activities. Nevertheless, had it proceeded with the former Shah's extremely ambitious nuclear program (under which four power reactors were actually being constructed), it might have become of some proliferation concern. But Iran did not acquire a reprocessing plant, none of the power reactors is being completed, and the current regime appears to have little interest in nuclear matters. Iran still has a 5 MW_{th} U.S.-supplied research reactor, fueled with highly enriched uranium, but less than 6 kilograms of such fuel were shipped to Iran* (which is insufficient to make a bomb), and the reactor would be incapable of producing enough plutonium for a bomb even if operated regularly for more than a decade, and this could not be used without reprocessing.

Egypt recently ratified the NPT, and is the principal proponent of a Middle East Nuclear-Weapon-Free Zone Treaty (described in Part III.E below). It has for many years had a small (2 MW_{th}) Soviet-supplied research reactor, fueled with 10% enriched uranium and not capable of producing significant quantities of plutonium even if operated for many decades. This will now come under IAEA safeguards. Egypt has recently negotiated an agreement for cooperation with the United States, and is exploring with the United States and others the possible purchase of several nuclear power reactors.

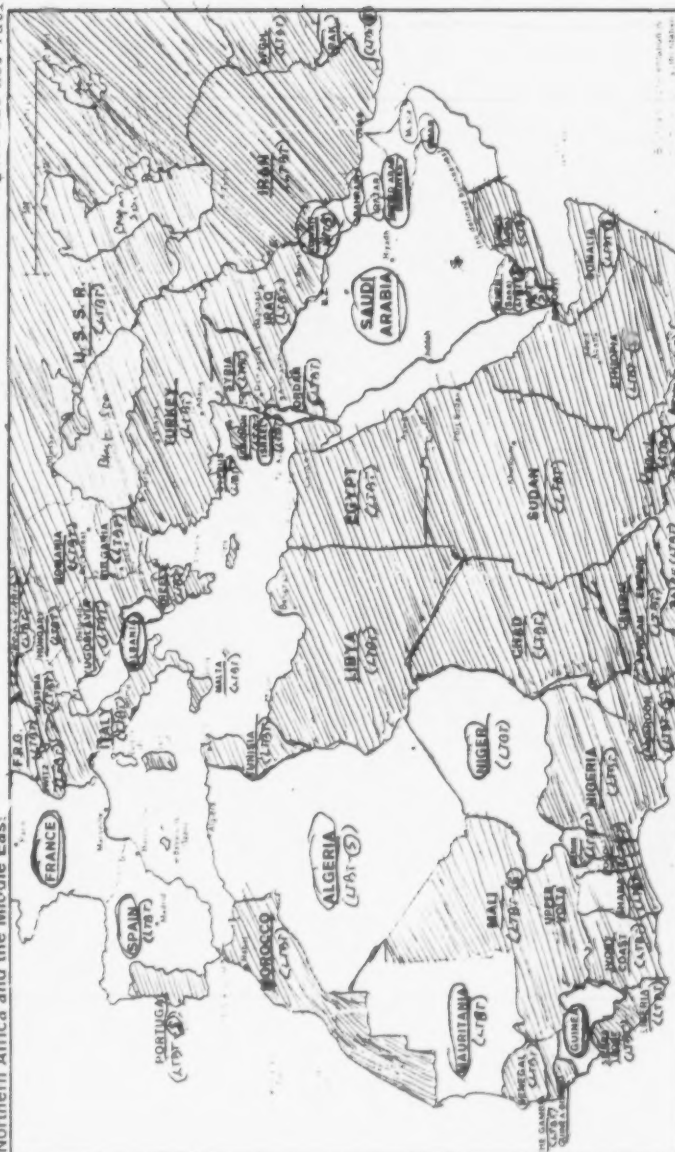
* Department of Energy, NMIS Report I-29, page 19.

The NPT and Limited Test Ban Treaty status of other states in the Middle East and South Asian regions are shown in the maps on the following two pages. None of these other states currently has capabilities which pose a significant proliferation risk. But it should be noted that Morocco, Algeria, and Bangladesh have taken steps to acquire research reactors, and Saudi Arabia has expressed interest in establishing a nuclear research center. Kuwait, the United Arab Emirates and Syria are reportedly considering the possibility of acquiring nuclear power plants.

For a useful recent discussion, in some depth, of the proliferation problem in the Middle East, South Asia and other regions of the world, see Yager et al, Non-Proliferation and U.S. Foreign Policy (The Brookings Institution, 1980).*

* See also SIPRI, The Near Nuclear Countries and the NPT (1972); Pranger and Tahtinca, Nuclear Threat in the Middle East (1975).

Northern Africa and the Middle East



States that
have signed
but not
ratified
NPT

LTBT
Statu

Kuwait	O
Yemen (Sana)	S

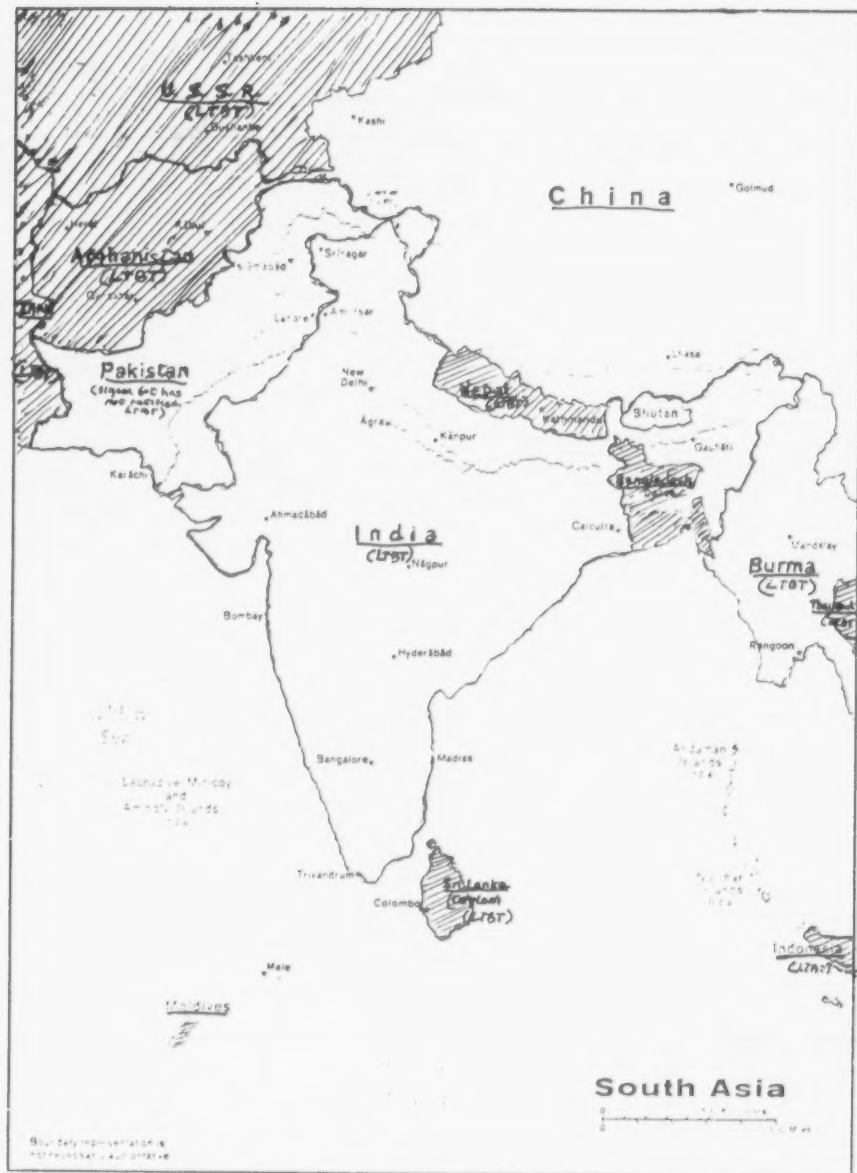
States that
have not
signed
NPT

Albania	O
Algeria	S
Bahrain	S
France*	O*
Guinea	O
Israel	P
Mauritania	P
Muscat & Oman	O
Niger	O
Pakistan	S
Qatar	O
Saudi Arabia	O
Spain**	P
United Arab Emirates	O
Uganda	P

*currently
limits tests
to underground
and behaves as
if it were an
NPT party.

**is putting al
its current
nuclear
facilities unde
safeguards.

P = party
S = signed but
not
ratified
O = non-sign-
natory



(LTBT) indicates that state is party to Limited Test Ban Treaty
 Diagonal lines indicate state is party to NPT

II. Pre-Emptive Strikes

This study will not attempt to address many of the weighty questions arising out of the bombing of the Iraqi facility, such as (a) its overall impact on the interests of Israel, (b) its impact on efforts to achieve peace in the Middle East, and (c) whether or not the use of U.S. aircraft was consistent with the terms of the agreement under which the aircraft was furnished. But it is necessary to make a few generic observations about pre-emptive strikes as a means of dealing with the proliferation problem:

- o While they may temporarily remove one of the symptoms of the disease, they cannot cure it. Assuming that a particular facility was in fact a part of a weapons-building program, its destruction might cause delays in the program but is most unlikely to stop it and could in fact reenforce the determination to proceed with it.

- o By abandoning the constraints of international law, they materially increase the risk of international chaos. If one state feels free to destroy a nuclear facility in another country, what barriers has it left to retaliation in kind, or to resort to the same expedient against other states?

- o They undermine efforts to deal with the problem through international law and diplomacy. The incentive to accept international constraints and safeguards with respect to genuinely peaceful, non-explosive nuclear programs will be reduced if, despite such acceptance, other states feel free to destroy such programs.

To reduce the motivation for preemptive strikes it is essential that we rededicate ourselves to the task of making international legal and diplomatic approaches to the problem as effective as possible. These approaches are discussed in the final section of this report.

III. Review of Non-Proliferation Approaches in Light of These Cases

Even this rather cursory review of the proliferation risks in this part of the world suggests the gravity of the problem and the urgency of major efforts to avoid the addition of a nuclear weapons dimension to these regional conflicts. It also leads to the observations set forth below on existing and prospective measures intended to deal with the proliferation problem.

A. Continued Significance of the Non-Proliferation Treaty

While not a total answer to the proliferation problem, adherence to the NPT can make a very real difference in several respects, as illustrated below:

- (1) It means that Iraq is under an international obligation not to manufacture or acquire nuclear explosives;
- (2) The continuing obligation it creates to accept IAEA safeguards on all peaceful nuclear activities in Iraq means that the highly enriched uranium fuel for the OSIRAK reactor must be continuously accounted for and periodically checked physically; that if Iraq produced plutonium by the use of the OSIRAK reactor, it would have an international legal obligation to subject that plutonium to IAEA safeguards, and if it moved

such material to the large hot cells in the complex it would have an international legal obligation to notify the IAEA and to submit design information on the hot cells to the IAEA in advance, to permit IAEA inspectors to safeguard the hot cells, and to follow the plutonium to any subsequent location.

(3) More generally, the safeguards obligation it entails provides an acknowledged means of checking compliance and creating a risk of detection and disclosure that can help deter misuse and provide some reassurance to other countries.

(4) It means that Iraq is under an international obligation not to transfer any special nuclear material to any other non-nuclear-weapon state without IAEA safeguards to verify that it will not be used in the recipient country for any nuclear explosive device.

(5) It means that none of the states covered by this study -- whether or not parties to the NPT -- can import nuclear materials or equipment from any state party to the NPT (or from France, under its declared policy of behaving as if it were a party to the NPT and in accordance with the Nuclear Suppliers' Guidelines) without IAEA safeguards on what is imported and on any special nuclear material derived from the use of such imports.

The significance of the first four of these points can be appreciated when one considers the consequences of their absence in the cases of Israel and Pakistan:

- There is no international mechanism for checking on what is going on at Israel's Dimona facility. Assuming the use of unsafeguarded natural uranium and heavy water* it could be operated to produce significant quantities of plutonium, which could then be reprocessed and made into nuclear weapons without violating any international undertaking.

- Pakistan's enrichment facility could be completed and operated to produce highly enriched uranium without any international mechanism providing knowledge of how much was being produced or where it went (either in terms of its own use in a nuclear explosive or its transfer to another country), or any legal restrictions on its disposition.

- Pakistan's reprocessing facility could be completed and operated -- if it could obtain unsafeguarded spent fuel and unless it becomes subject to safeguards by virtue of an agreement entered into in connection with the aborted French construction of a large reprocessing facility** --

* The initial load of heavy water was supplied by France. Annual make-up requirements are small, and can presumably be produced indigenously by Israel, or possibly purchased.

**This agreement created a conclusive presumption that any solvent extraction reprocessing plant built on Pakistan for 20 years after the agreement would benefit from the French technology and thus had to be safeguarded.

without providing knowledge of how much plutonium was being produced or where it went (either in terms of its use in a nuclear explosive or transfer to another country), or any legal restrictions on its disposition.

The significance of the fifth point made on page 27 was highlighted in the opening U.S. statement at the 1980 NPT Review Conference, which pointed out that, together with France, the parties to the NPT comprise all of the world's exporters of nuclear power reactors and all major exporters of key components therefor; all of the world's exporters of enriched uranium; all of the world's exporters of heavy water (although the Chinese have since exported modest amounts); 94% of all foreign aid donations, and 87% of the funding of international financial institutions. It added that these figures demonstrate that -- for non-parties to the NPT -- the road to developing a nuclear power program in the foreseeable future must be traveled in cooperation with one or more of these members of the NPT regime.

As in the case of any legal obligation (including those embodied in our criminal codes), it is possible that violations of NPT obligations could occur. But the existence of the obligation has deterrent value and provides a clear basis for responses to behavior inconsistent with the obligation. Thus we do not abandon the laws against first degree murder on the ground that they have not eliminated all such murders.

It is also recognized that the NPT contains a provision permitting a party to withdraw on three months' notice "if it decides that extraordinary events, related to the subject matter of this treaty, have jeopardized the supreme interests of its country," advising the U.N. Security Council of the extraordinary events relied upon. But this provision is unlikely to be lightly resorted to, and it would provide some time for an international response to be brought into play. Despite the presence of such a withdrawal clause in three major multilateral arms control treaties (the Limited Test Ban Treaty, the Treaty of Tlatelolco, and the NPT, which have been in effect for 17, 13, and 11 years, respectively), no party has yet exercised this right or seriously threatened to do so. Moreover, it is possible to provide (as the United States does, and as the French did in the case of Iraq) for the continuation of IAEA safeguards on material derived from imports even in the event of a withdrawal from the NPT.

The recent argument (Washington Post editorial, June 16, 1971 and June 19 testimony of Roger Richter before the Senate Committee on Foreign Relations) that the NPT may be subject to abuse by countries wishing to use it as a cover while they are building up the capability to make nuclear weapons, seems to assume that supplier countries are likely to abandon the exercise of judgment in their nuclear exports where the recipient has joined the NPT. This ignores the consensus among the world's principal nuclear exporting states in the Nuclear Suppliers' Guidelines, that "In considering transfers, each supplier should exercise prudence having

regard to all the circumstances of each case." Thus, for example, even though Libya is party to the NPT and might assert its rights under Article IV thereof to the fullest possible exchange of nuclear materials and equipment for peaceful purposes, it seems most unlikely that any supplier would be so mesmerized by these considerations that it would ship large quantities of separated plutonium or highly enriched uranium to Col. Qaddafi.

It is important that decision-makers not give so much weight to conceivable abuses that they lose sight of the very real advantages of the NPT described above.

B. Continued Importance and Utility of IAEA Safeguards

The utility of IAEA safeguards in verifying the location and form of highly enriched uranium fuel in Iraq and at Israel's IRR-1 reactor was mentioned in Part I, as well as the point that safeguards agreements require notification to the IAEA of imports or exports of U_3O_8 and of any upgrading of such material, and provide for routine inspections of any such material that has been upgraded and notice of any changes in its location or form.

With respect to the risks that plutonium could be produced through the operation of the OSIRAK reactor, it is to be noted that Iraq's safeguards agreement with the IAEA provides for a maximum annual routine inspection effort of 50 man days at each reactor in which the inventory or annual throughput (whichever is larger) of plutonium exceeds 5 kg or an equivalent amount of highly enriched uranium, and for an even larger allocation of effort (with a maximum routine inspection effort no less than 1.5 man years) for other facilities

containing such quantities of these materials.* It also provides for special inspections without advance notification** (although in practice the IAEA has rarely, if ever, failed to provide some advance notice). While the Agency and Iraq still have under preparation a facility attachment spelling out in greater detail the types of reports, records, inspections and other measures to be routinely applied (which might well include camera surveillance to provide the continuity of knowledge between inspections that is an agreed objective of the safeguards under this agreement), the inspections to date were carried out under a provision permitting ad hoc inspections pending the completion of such a facility attachment. Thus they have not been legally restricted to three inspections per year, although that might have been the rate provided for in the facility attachment had it been completed.***

Some of the other advantages of safeguards were mentioned in the discussion of the NPT above. These include the opportunity for design review of any facility to which safeguarded material is moved, pursuit of any special nuclear material produced through the use of safeguarded material or equipment, and requirements designed to ensure that any safeguarded nuclear material or equipment that is exported to a non-nuclear weapon state will continue to be under IAEA safeguards (which

* IAEA-INFCIRC/172, sec. 80.

** Id., sec. 84.

***Mr. Richter indicated his belief that it would in his June 25 testimony before subcommittees of the House Committee on Foreign Affairs.

include an international obligation not to use the material for any military or explosive purpose). These advantages were contrasted with the problems in cases where safeguards do not apply.

Because of this contrast, the United States and other countries have been trying for the past few years to make NPT-type full scope safeguards coverage* a condition of all future supply commitments, and international consensus on this seemed nearly within reach at the 1980 NPT Review Conference. Renewal of these efforts seems strongly indicated, as does the continuation of strong efforts to improve safeguards techniques, instrumentation, and implementation.**

Recognition of the need for some improvements in IAEA safeguards at facilities such as the OSIRAK reactor, which present special difficulties, should not be turned into a denigration of the importance and utility of safeguards in general. It must be remembered that the vast majority of nuclear facilities in the world -- including most of the world's nuclear power reactors -- which are relatively easy to safeguard with high confidence -- are now under IAEA safeguards. The amount of plutonium produced each year in these safeguarded facilities is tens of tons.

*I.e., a commitment to accept IAEA safeguards not only on all existing peaceful nuclear activities, but also on any subsequent peaceful nuclear activities as they arise.

**Another potential safeguards development -- international plutonium storage (IPS) -- is the subject of a separate study by the present author soon to be published by the Congressional Research Service.

C. Prudent Common Nuclear Export Policies

The cases reviewed in this paper also highlight the desirability of continuing to promote prudent, common nuclear export policies. Unpopular as they were among the Third World countries, the Nuclear Suppliers' Guidelines* were in fact quite modest, sensible guidelines designed to ensure that commercial competition did not lead to bargaining away export conditions intended to prevent further proliferation. While their primary thrust was to ensure the broadest possible safeguards coverage** (and to crystallize French policy in favor of requiring safeguards on their nuclear exports), they also dealt with the need for great caution in the export of weapons-usable materials and facilities for their production or recovery. They helped give impetus to the idea, on which a much broader consensus was subsequently reached in the International Nuclear Fuel Cycle Evaluation (INFCE), that substitutes could and should be found for highly enriched uranium fuel for use in most research reactors (one example being the caramel fuel the French might supply for the OSIRAK reactor).*** They also emphasized the need

* IAEA-INFCIRC/254. The basic guidelines (without annexes) are reprinted as an Appendix to the 1977 Annual Report of the U.S. Arms Control and Disarmament Agency.

** One of the mechanisms employed being a "trigger list" of items that should not be exported without triggering safeguards. There is a need to hold international consultations on upgrading this list.

*** The United States and Germany among others, have also done highly successful work in developing and demonstrating one use of relatively low enriched fuels in research reactors.

to design sensitive nuclear installations to facilitate the application of safeguards, and pointed out the desirability of ensuring that new enrichment capacity be designed and operated for the production of only low enriched uranium. They recognized the need, also acknowledged by INFCE, for improved safeguards at bulk handling facilities such as reprocessing plants, and for the maintenance of agreed levels of physical protection of nuclear materials and facilities against theft or seizure. They pointed to the general need for prudence in nuclear exports in the light of the circumstances of particular cases and for consultations in difficult cases, and laid the groundwork for sanctions against violation of the commonly agreed minimum conditions of export.

It is no indictment of the NPT to concede that it cannot carry the entire burden of preventing further proliferation. Such complementary approaches as those just described are also needed, as is a lessening by nuclear weapon states of the extent to which they relate nuclear weapons to their national security.

D. Test Ban Treaties

It is at least a positive feature that Israel and Iraq are both parties to the Limited Test Ban Treaty, as is every other country of current proliferation concern except Pakistan and Argentina. This treaty in effect requires that any nuclear explosions be conducted underground -- which adds to the expense and difficulty of such testing, but by no means precludes it. And it means that such states (like the United States) are parties

to a treaty whose preamble states that they are "seeking to achieve the discontinuance of all test explosions of nuclear weapons for all time", and are "determined to continue negotiations to this end," and which states in Article I that its provisions are "without prejudice to the conclusion of a treaty resulting in the permanent banning of all nuclear test explosions, including all such explosions underground, the conclusion of which, as the Parties have stated in the Preamble to this Treaty, they seek to achieve."

Considerably greater protection against proliferation could be gained if these states became parties to a truly comprehensive test ban treaty. While it may be possible for a state with a sophisticated scientific establishment to develop a first atomic weapon without testing, a comprehensive test ban treaty could deprive such countries of reassurance as to whether their design really worked, hamper their further refinement of nuclear weapons, preclude their development of very large yield devices, and remove the opportunity to demonstrate that they had in fact achieved a nuclear weapons capability. And it would be an even-handed treaty.* It would prevent further nuclear testing by the nuclear weapon parties and symbolize some lessening of their emphasis on nuclear weapons.

The most obvious path toward achieving wide adherence to a comprehensive ban on all nuclear weapon tests would be to speed

* The NPT has two classes of parties with somewhat different obligations - nuclear-weapon states and non-nuclear-weapon states.

completion of the trilateral US-UK-USSR negotiations on this subject in Geneva.

The impact of a threshold test ban treaty on the proliferation problem would be considerably less clear. The Threshold Test Ban Treaty now before the Senate has merit as a step in the right direction in the U.S.-Soviet context, and Mr. Rostow reportedly suggested, in the hearings on his confirmation as Director of the Arms Control and Disarmament Agency, that he could support it.* But the fact that it is a bilateral treaty and permits nuclear explosions up to 150 kilotons, would mean that it is not even open to adherence by the states discussed in this paper and that the threshold is larger than any likely initial tests by these countries. Moreover, for non-proliferation purposes, retention of an option to terminate obligations under the treaty after its initial five-year period would not provide much reassurance, and the problem of precluding "peaceful" nuclear explosions by non-nuclear weapon states not parties to the NPT could be knotty.

* Washington Post, June 23, 1981, p. A.2.

E. Proposals for Nuclear-Weapons-Free Zones

The success of the Treaty of Tlatelolco, which creates a nuclear-weapons-free zone in Latin America,* has led to proposals for similar zones in the regions here under discussion.

On December 12, 1980, the U.N. General Assembly adopted by consensus, in which Israel joined, resolution 35/147, entitled "Establishment of a nuclear-weapon-free zone in the region of the Middle East", the text of which is set forth in Appendix C hereto. In a letter dated 9 June 1981 to the UN Secretary-General (A/36/315), the Government of Israel called attention to its own earlier proposal in the form of a draft resolution (A/C.1/L.8) which called upon all States of the Middle East and non-nuclear-weapon States adjacent to the region "to convene at the earliest possible date a conference with a view to negotiating a multilateral treaty establishing a nuclear-weapon-free zone in the Middle East," and requested that all such states indicate in the course of 1981 their consent to the holding of a preparatory conference to discuss the modalities of such a conference. It stated that in such a volatile area as the Middle East "a nuclear-weapon free zone can only be established if each State is contractually assured of compliance with the commitment by all the other States in the region to abstain from introducing nuclear weapons into the region." Taking note of an April 1981 suggestion by

* Although U.S. ratification of Additional Protocol I, which is a precondition to the treaty's becoming binding on Argentina, Brazil and Chile, is still pending before the Senate and deserves prompt action.

Egypt for a study on the modalities for establishing such a nuclear weapon free zone, it proposed that such a study be undertaken by qualified experts from Middle East States, including Israel, as also recommended in a 1980 report by the Secretary-General (A/35/416, para. 248). Finally, the Israeli letter stated that "There is no need to wait until all Governments in the Middle East see their way to endorsing such a study: undertaking it in the manner proposed by Israel would, by itself, constitute a valuable step in the direction of building much needed confidence between the States of the region prior to the holding of the preparatory conference proposed above."

On December 12, 1980, the UN General Assembly also adopted by a vote of 96-3-44 a Pakistani resolution for the establishment of a nuclear-weapon free zone in South Asia (Res. 35/148, which is also included in Appendix B hereto). While this resolution was supported by the United States, it was opposed by India. This follows a pattern than has obtained since 1974. While Pakistan has advocated a zone generally limited to the sub-continent (i.e., excluding China), India has stated that it will support creation only of a zone which covers a broader Asian area, including China, and which results from consultations among the potential participants concerning such a zone. In 1975, India introduced its own resolution supporting this concept of the zone, and that was adopted by the General Assembly in addition to the Pakistani resolution. India did not introduce

its own resolution in 1980.

The reluctance of key parties in both of these regions to actually negotiate with other key parties suggests another approach which might be considered. This would be based on the concept of Protocol II to the Treaty of Tlatelolco, under which the five nuclear weapon states have agreed not to station nuclear weapons in the territories of the parties to the zone and not to use or threaten to use nuclear weapons against such parties so long as they abide by their obligations under that treaty. In the Middle East and South Asian regions, it is conceivable that the nuclear weapon states could agree upon such a protocol without completion of the regional treaty. Their undertaking could be conditioned on specified restraints by the countries in the region (e.g., refraining from any nuclear explosion, or the deployment or use of any nuclear weapon). It would be intended to provide an incentive for such restraints.

F. International Conventions Relating to Attacks on Nuclear Installations

In 1977, there was opened for signature a Protocol I Additional to the Geneva Conventions of 12 August 1949, and relating to the Protection of Victims of International Armed Conflicts, and this Protocol has been brought into force by several states. It includes the following article:

"Article 56 - Protection of works and installations containing dangerous forces.

1. Works or installations containing dangerous forces, namely dams, dykes and nuclear electrical generating stations, shall not be made the object of attack, even where these objects

- 41 -

are military objectives, if such attack may cause the release of dangerous forces and consequent severe losses among the civilian population. Other military objectives located at or in the vicinity of these works or installations shall not be made the object of attack if such attack may cause the release of dangerous forces from the works or installations and consequent severe losses among the civilian population.

2. The special protection against attack provided by paragraph 1 shall cease: *** (b) for a nuclear electrical generating station only if it provides electric power in regular, significant and direct support of military operations and if such attack is the only feasible way to terminate such support.***

3. In all cases, the civilian population and individual civilians shall remain entitled to all the protection accorded them by international law, including the protection of the precautionary measures provided for in Article 57 [which relate to planning and decisions upon attacks]. If the protection ceases and any of the works, installations or military objectives mentioned in paragraph 1 is attacked, all practical precautions shall be taken to avoid the release of the dangerous forces.

4. It is prohibited to make any of the works, installations or military objectives mentioned in paragraph 1 the object of reprisals.

Neither Israel nor Iraq nor the United States has yet joined this Convention, and it would not appear literally applicable to the Iraqi research reactor, which was not an electrical generating

station. But the establishment of this principle is obviously relevant. Prime Minister Begin's explanation of the timing of the recent bombing included the point that bombing it after it had become operational would have released dangerous forces of the kind covered by this article.

The Radiological Weapons Convention currently under negotiation in the Committee on Disarmament in Geneva does not, in its present form, deal with the release of radiation by attacks on nuclear installations, but the Swedish delegation has proposed that it do so. If this were pursued, it would apply in peacetime (not only in war) and might correct the regrettable omission of research reactors, as well as reprocessing and waste handling facilities (which would present even greater potential hazards than reactors if bombed).

CONCLUSION

To allow the bombing of the Iraqi facility to devalue international efforts to prevent further nuclear proliferation would be both irresponsible and tragic. Instead, it is hoped that it will result in a renewed determination to pursue such efforts and make them more effective. In this connection, the vitality of the NPT regime must be maintained; efforts must be continued to achieve full-scope safeguards coverage and to improve safeguards techniques and implementation; common, responsible nuclear export policies must be followed, strengthened and improved by all concerned; and increased attention should be given to the contributions which could be made by restrictions on nuclear testing, nuclear weapons free zones, and other relevant international initiatives. It should become a major, explicit objective of diplomatic efforts to prevent the addition of a nuclear weapons dimension to the hostilities in the Middle East and South Asia.

Extract from Statement by Iraqi President
Saddam Hussein during Cabinet Meeting June 23, 1981
(FBI-MA-81-121, Wednesday June 24, 1981)

Irrespective of Iraq's intentions and of its present or future capabilities, I believe that anyone or any state in the world which really wants peace and security and which really respects peoples and does not want them to be subjugated to foreign forces should help the Arabs in one way or another to acquire atomic bombs to confront the actual Israeli atomic bombs, not to champion the Arabs and not to fuel war, but to safeguard and achieve peace. Irrespective of the Arabs' intentions and capabilities and even if the Arabs do not want them and are unable to use them, I believe that any state in the world that is internationally and positively responsible to humanity and peace must tell the Arabs: Here, take these weapons in order to face the Zionist threat with atomic bombs and prevent the Zionist entity from using atomic bombs against the Arabs, thus saving the world from the dangers of using atomic bombs in wars.

This logic is applied by the United States in its dealing with the Soviet Union and by the Soviet Union in dealing with the United States. Others also apply this logic toward each other. I do not believe that the Soviet Union now wants to use the atomic bomb against the United States or that the United States wants to use it against the Soviet Union. This is due to the advanced state reached by humanity in its thinking, conscience and attitudes, including public opinion in the United States, the Soviet Union and the world at large. I do not believe that either the Americans or the Soviets will use the atomic bomb against each other. However, both of them and others like them are always endeavoring to develop their weapons to prevent the eruption of war.

This logic is not to justify the Arabs' acquisition of nuclear technology for military purposes but is an open discussion with humanity. This discussion is not aimed at dealing with the Arabs as those who have created a precedent, because the Arabs do not possess nuclear weapons, but is a discussion to deal with a state that actually exists in Israel. All experts and all concerned with atomic weapons and the affairs of the Middle East admit that Israel possesses several nuclear bombs.

What would happen if Israel imposed conditions on the Arabs, they did not accept them and Israel used nuclear bombs against them? What would happen to the Arabs and mankind under such blackmail and in such a dangerous situation?

Israeli Description of Pakistan's Nuclear Program

(Extract from letter dated 27 May, 1981 from the Permanent Representative of Israel to the United Nations addressed to the Secretary-General (A/36/298))

In his letter dated 3 February 1981 and addressed to Your Excellency (A/36/92), the Permanent Representative of Pakistan claimed, inter alia, that "the nuclear research and development programme of Pakistan is geared entirely to peaceful purposes". * * *

On instructions, I have the honour to make the following observations:

A. Pakistan's nuclear weapons programme

1. Background

Pakistan is not a party to the Treaty on the Non-Proliferation of Nuclear Weapons. It has not ratified the Partial Test-Ban Treaty of 1963, and its nuclear activities are not completely covered by International Atomic Energy Agency (IAEA) safeguards.

Although Pakistani officials frequently deny their country's intentions to develop nuclear weapons and maintain that its nuclear activities are designed for peaceful purposes, there is abundant evidence indicating that Pakistan aims at producing nuclear weapons. The Pakistani Atomic Energy

* A/36/50.

Commission, the Ministry of Defence and the Engineering Research Laboratories share responsibility for the country's nuclear activities, and are involved in a process directed at the establishment of a nuclear infrastructure, which, on completion, will make Pakistan self-sufficient in the nuclear field. 1/

In order to obtain weapon-grade material, Pakistan has embarked in parallel on the reprocessing of plutonium and on uranium enrichment. Pakistan is also working on the development of nuclear explosive devices and on preparations for a test nuclear detonation.

2. The weapons programme

(a) Plutonium course

Since 1972, Pakistan has operated a 137MW CANDU (heavy water type) power reactor located at Paradise Point Sind, near Karachi. This reactor - known as KANUPP - is under IAEA safeguards. KANUPP is well-suited for the production of weapons-usable plutonium since it can be loaded and unloaded on line. During its eight years of operation, KANUPP has produced spent fuel containing more than 100 kg of plutonium. A chemical facility is required to obtain plutonium. Pakistan obtains plutonium from the irradiated fuel produced in this nuclear power plant through reprocessing activities carried out at a hot laboratories complex located close to the Nuclear Research Centre at PINSTECH (the Pakistan Institute of Technology), near Islamabad. 2/ This facility has functioned clandestinely since 1980. 3/ and produces annually at least 20 lb of plutonium necessary for one explosive device a year. 4/ Thus it is possible that this reprocessing facility will provide Pakistan with the necessary quantity of plutonium for one explosive device by the middle of 1981.

In addition - after obtaining most blueprints of a French reprocessing plant and clandestinely purchasing components from a variety of countries - Pakistan has begun constructing at the Chasma Nuclear Centre a large reprocessing plant (KNCR), to be completed in 1982-1983. This plant will enable Pakistan to produce plutonium for at least 10 nuclear explosive devices a year. In other words, it will enable Pakistan to build a meaningful arsenal of nuclear weapons. 5/

(b) Enriched uranium course

Pakistan is secretly constructing (near Kahuta, 20 km from Islamabad) a plant for the production of weapon-grade enriched uranium by centrifuges. This plant is built on the basis of information concerning uranium enrichment technology stolen from the URENCO plant in the Netherlands by a leading Pakistani scientist, Dr. A. Q. Khan. 6/ Pakistan has established a chain of "front" companies throughout 14 countries to acquire clandestinely all the necessary components piece by piece. 7/

Pakistan apparently intends to build the plant in phases:

- (i) A pilot plant which, already in 1979, was reported to have been working. 8/
- (ii) The assembling of about 1,000 centrifuges which are expected to produce enough enriched uranium for one nuclear explosive device every two years. This phase is in the process of being completed. 9/
- (iii) The assembling of close to 10,000 centrifuges which in turn could produce about 150 kg of enriched uranium a year, sufficient to make about seven nuclear explosive devices a year. 10/
- (c) Development of the first nuclear explosive device

Pakistan is making preparations related to the development of an explosive device and its testing. For this purpose, it is apparently acquiring overseas the necessary items and equipment and is preparing a detonation site in the desert. 11/

The first Pakistani nuclear explosive device will probably be a plutonium one produced at the hot laboratories of PINSTECH. The decision as to whether and when the first nuclear device is tested will apparently be influenced by various political considerations facing the country's leadership.

3. Other activities in the nuclear fuel cycle

Pakistan is also actively seeking to achieve self-sufficiency in other fields of the fuel cycle.

(a) Uranium mining and purchasing

Pakistan mines, mills and processes uranium ores at the Iera Gazi Khan mines in the central region of the country. 12/ Several hundred tons of uranium are being purchased from Niger, either directly or through Libya. 13/

(b) Fuel fabrication plant

Pakistan has built at Chasma a plant to manufacture fuel elements, apparently using indigenous uranium. 14/

h. Foreign assistance and financial support

There are reports that Libya and Saudi Arabia have provided extensive financial assistance to Pakistan. 15/ Saudi Arabia, which expressed admiration for the Pakistani achievements in the nuclear field, 16/ tried to influence Pakistan to curtail Iraqi financial support in return for sharing Pakistani know-how. 17/

A/36/298
English

- 48 -

Annex

Sources

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7. 8 Days, London, 23 June 1979, pp. 9-10.
8. Financial Times, London, 14 August 1979.
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13. Nuclear Fuel, New Jersey, 10 December 1979, pp. 3-4; Financial Times, 4 January 1980; Nuclear Engineering International, Sutton, England, February 1980, p. 11.
14. International Herald Tribune, 2 September 1980; Financial Times, 1 September 1980; Washington Post, 24 September 1980; Nuclear Engineering International, October 1980.
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U.N. General Assembly Resolutions on Establishment of
Nuclear-Weapon-Free Zones in the Middle East
and South Asia

39/147. Establishment of a nuclear-weapon-free zone in the region of the Middle East

Date: 12 December 1980
Adopted without a vote

Meeting: 96
Report: A/35/690

The General Assembly.

Recalling its resolution 3263 (XXIX) of 9 December 1974, in which it overwhelmingly commended the idea of the establishment of a nuclear-weapon-free zone in the region of the Middle East,

Recalling also its resolution 3474 (XXX) of 11 December 1975, in which it recognized that the establishment of a nuclear-weapon-free zone in the Middle East enjoyed wide support in the region,

Bearing in mind its resolution 31/71 of 10 December 1976, in which it expressed the conviction that progress towards the establishment of a nuclear-weapon-free zone in the Middle East would greatly enhance the cause of peace in the region and in the world,

Recalling its resolution 32/82 of 12 December 1977, in which it expressed the conviction that the development of nuclear capability would further complicate the situation and immensely damage the efforts to establish a nuclear-weapon-free zone in the Middle East,

Guided by the recommendations in the Final Document of the Tenth Special Session of the General Assembly dealing with the establishment of a nuclear-weapon-free zone in the region of the Middle East, 39/

Recalling also its resolutions 33/64 of 14 December 1978 and 34/77 of 11 December 1979,

Recognizing that the establishment of a nuclear-weapon-free zone in the Middle East would greatly enhance international peace and security,

1. Urges all parties directly concerned seriously to consider taking the practical and urgent steps required for the implementation of the proposal to establish a nuclear-weapon-free zone in the Middle East in accordance with the relevant resolutions of the General Assembly and, as a means of promoting this objective, invites the countries concerned to adhere to the Treaty on the Non-Proliferation of Nuclear Weapons; 60/

2. Invites those countries, pending the establishment of such a zone in the Middle East and during the process of its establishment, to declare solemnly that they will refrain, on a reciprocal basis, from producing, acquiring or in any other way possessing nuclear weapons and nuclear explosive devices;

3. Calls upon those countries to refrain, on a reciprocal basis, from permitting the stationing of nuclear weapons on their territory by any third party and to agree to place all their nuclear activities under International Atomic Energy Agency safeguards;

4. Further invites those countries, pending the establishment of a nuclear-weapon-free zone in the Middle East and during the process of its establishment, to declare their support for establishing such a zone in the region consistent with paragraphs 60 to 63, in particular paragraph 63 (d), of the Final Document of the Tenth Special Session and to deposit those declarations with the Security Council for consideration as appropriate;

39/ Ibid., para. 63 (d).

60/ General Assembly resolution 2373 (XXII), annex.

5. Reaffirms again its recommendation to the nuclear-weapon States to refrain from any action contrary to the spirit and purpose of the present resolution and the objective of establishing in the region of the Middle East a nuclear-weapon-free zone under an effective system of safeguards and to extend their co-operation to the States of the region in their efforts to promote these objectives;

6. Renews its invitation to the Secretary-General to continue to explore the possibilities of making progress towards the establishment of a nuclear-weapon-free zone in the region of the Middle East;

7. Decides to include in the provisional agenda of its thirty-sixth session the item entitled "Establishment of a nuclear-weapon-free zone in the region of the Middle East".

35/148. Establishment of a nuclear-weapon-free zone in South Asia

Date: 12 December 1980
Vote: 96-3-44 (recorded)

Meeting: 94
Report: A/35/691

The General Assembly,

Recalling its resolutions 3265 B (XXIX) of 9 December 1974, 3476 B (XXX) of 11 December 1975, 31/73 of 10 December 1976, 32/83 of 12 December 1977, 33/65 of 14 December 1978 and 34/78 of 11 December 1979 concerning the establishment of a nuclear-weapon-free zone in South Asia,

Reiterating its conviction that the establishment of nuclear-weapon-free zones in various regions of the world is one of the measures which can contribute most effectively to the objectives of non-proliferation of nuclear weapons and general and complete disarmament,

Believing that the establishment of a nuclear-weapon-free zone in South Asia, as in other regions, will strengthen the security of the States of the region against the use or threat of use of nuclear weapons,

Noting the declarations issued at the highest level by Governments of South Asian States reaffirming their undertaking not to acquire or manufacture nuclear weapons and to devote their nuclear programmes exclusively to the economic and social advancement of their peoples,

Recalling that in the above-mentioned resolutions it called upon the States of the South Asian region and such other neighbouring non-nuclear-weapon States as might be interested to make all possible efforts to establish a nuclear-weapon-free zone in South Asia and to refrain, in the meantime, from any action contrary to this objective,

Further recalling that, in its resolutions 3265 B (XXIX), 31/73 and 32/83, it requested the Secretary-General to convene a meeting for the purpose of the consultations mentioned therein and to render such assistance as might be required to promote the efforts for the establishment of a nuclear-weapon-free zone in South Asia,

Bearing in mind the provisions of paragraphs 60 to 63 of the Final Document of the Tenth Special Session of the General Assembly ^{41/} regarding the establishment of nuclear-weapon-free zones, including in the region of South Asia,

Taking note of the report of the Secretary-General on the establishment of a nuclear-weapon-free zone in South Asia, ^{42/}

1. Reaffirms its endorsement, in principle, of the concept of a nuclear-weapon-free zone in South Asia;

^{41/} Resolution S-10/2.

^{42/} A/35/452.

2. Urges once again the States of South Asia and such other neighbouring non-nuclear-weapon States as may be interested to continue to make all possible efforts to establish a nuclear-weapon-free zone in South Asia and to refrain, in the meantime, from any action contrary to this objective;

3. Calls upon those nuclear-weapon States which have not done so to respond positively to this proposal and to extend the necessary co-operation in the efforts to establish a nuclear-weapon-free zone in South Asia;

4. Requests the Secretary-General to render such assistance as may be required to promote the efforts for the establishment of a nuclear-weapon-free zone in South Asia and to report on the subject to the General Assembly at its thirty-sixth session;

5. Decides to include in the provisional agenda of its thirty-sixth session the item entitled "Establishment of a nuclear-weapon-free zone in South Asia".

* :CORDED VOTE ON RESOLUTION 35/148:

In favour: Bahrain, Bangladesh, Barbados, Belgium, Burundi, Canada, Cape Verde, Chad, Chile, China, Colombia, Comoros, Costa Rica, Democratic Kampuchea, Democratic Yemen, Djibouti, Dominican Republic, Ecuador, Egypt, El Salvador, Finland, Gabon, Gambia, Federal Republic of Germany, Ghana, Grenada, Guatemala, Guinea, Guyana, Haiti, Honduras, Iceland, Iran, Iraq, Ireland, Ivory Coast, Jamaica, Japan, Jordan, Kenya, Kuwait, Lebanon, Lesotho, Liberia, Libya, Luxembourg, Malaysia, Maldives, Mali, Malta, Mauritania, Mexico, Nepal, Netherlands, New Zealand, Niger, Nigeria, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, Peru, Philippines, Portugal, Qatar, Romania, Rwanda, Saint Lucia, Samoa, Saudi Arabia, Senegal, Sierra Leone, Singapore, Somalia, Spain, Sri Lanka, Sudan, Swaziland, Thailand, Togo, Trinidad and Tobago, Tunisia, Turkey, Uganda, United Arab Emirates, United Republic of Cameroon, United Republic of Tanzania, United States, Upper Volta, Uruguay, Venezuela, Yemen, Zaire, Zambia, Zimbabwe.

Against: Bhutan, India, Mauritius.

Abstaining: Afghanistan, Algeria, Angola, Argentina, Australia, Austria, Bahamas, Benin, Bolivia, Brazil, Bulgaria, Burma, Byelorussia, Central African Republic, Congo, Cuba, Cyprus, Czechoslovakia, Denmark, Ethiopia, Fiji, France, German Democratic Republic, Greece, Hungary, Indonesia, Israel, Italy, Lao People's Democratic Republic, Malawi, Mongolia, Morocco, Mozambique, Nicaragua, Norway, Poland, Sao Tome and Principe, Seychelles, Sweden, Ukraine, USSR, United Kingdom, Viet Nam, Yugoslavia.

Absent: Albania, Botswana, Dominica, Equatorial Guinea, Guinea-Bissau, Madagascar, Saint Vincent, Solomon Islands, Suriname, Syria.

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SCRATCH35
VII

IRAQI/ISRAELI NUCLEAR-WEAPONS

by

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Besides supplying the long-range aircraft used by Israel to bomb the Iraqi reactor, was the United States in any other way involved? Finding out is difficult because of government secrecy. But evaluation of American strategic policy gives some clues as to the type of influence that the U.S. government would exert.

Under Carter, administration policy was focused on carrying out decisions of previous presidents to increase strategic nuclear deterrent forces. In addition, the United States had already subscribed to the international Treaty on the Non-Proliferation of Nuclear Weapons. Within that dual framework, American policy was oriented towards completely stopping the proliferation of nuclear-weapons to other countries. This national posture was to be fulfilled by any means short of reducing our own nuclear weapon forces, unless the Soviet Union agreed to arms limitations.

As a result of our national security dependence on nuclear weapons, antiproliferation policy must conform to certain higher-priority strategic military vectors. Thus, the United States has not entered into treaties to cease underground nuclear testing or to otherwise limit nuclear arms development, production, or deployment -- all measures that would reduce proliferation.

Implied by the nuclear strategic doctrine are new weapons systems, such as a land-mobilized MX, a revived B-1 bomber, and a renewed anti-ballistic missile concept. For NATO this would mean the introduction of Pershing-II nuclear missiles that can reach the Soviet Union from the English channel and the integration of nuclear, chemical, and neutron bomb warfare on the European battlefield.

Nuclear arms policy includes war preparations such as 10,000 new nuclear warheads with fissile plutonium to be generated in new special production reactors. At the same time, we discourage other nations from making nuclear weapons.

The southern flank of NATO is primarily guarded by Israel, to support our strategic interests in maintaining oil flow and in containing Soviet expansionism. Although it would be particularly destabilizing now to give nuclear weapons to Israel (which may already have them), it has not been bad form to give them systems capable of launching nuclear weapons. Examples are the F-16 long-range fighter-bombers and the Lance artillery missile system, both of which have a capacity for delivering nuclear warheads. And American-supplied F-15 interceptors were used in the raid as air cover.

Other parties of the Non-Proliferation Treaty have frequently reminded the superpowers of their obligations to the nonnuclear-weapons states. Agreements to restrain the nuclear arms race and to share information and technology on peaceful applications of nuclear power are conditions of the treaty. Other signatories have considered the failure to satisfy these provisions as a major obstacle towards international control of proliferation.

Yet regarding India, the United States attempted to align world opinion against it at the time of its nuclear-explosive test, and treaty obligations to supply reactor fuel have not been fulfilled. We have also backed out of recycle of nuclear fuel and have engaged in other measures aimed at denying technology and reactor fuels to nonnuclear-weapons states, contrary to treaties. Our role as a reliable supplier has been jeopardized.

We have retained overly strict and needless controls over the export or publication of undetailed conceptual information related to fission and thermonuclear weapons. In the Progressive case, the government unsuccessfully tried to censor, under the pretext of sensitive H-bomb data, an article dealing with the vast domestic industry involved in producing nuclear weapons.

Past administrations have exaggerated the ease with which terrorists and nations could fabricate nuclear weapons, particularly by diversion from the nuclear power fuel cycle. Meanwhile, we have cooperated only selectively with the international nonproliferation regime, taking particular exception to matters inimical to American strategic or commercial interests.

The United States has routinely shared transmitted intelligence information to Israel. As a matter of process, technical data could hardly be conveyed if it were not in conformance with our national positions on strategic nuclear arms. If the technical data given to the Israelis were manipulated into conformance, the results would follow certain predictable patterns. More stress would be put on the possibility rather than the practicality of the Iraqis converting their reactor to production of weapons-grade materials. The ease of manufacture and degree of reliability of untested nuclear weapons would be overemphasized. It would then be no surprise to find that the Israelis, who have not agreed to international safeguards for their 25 MW Dimona reactor, have taken destructive measures to interfere with delivery and operation of the French research reactor for Iraq.

All intelligence information and all foreign policy matters are classifiable as restricted forms of data. The entire United States role in the Israeli bombing and sabotage is obscure and likely to remain so. This is nothing new, as most major nuclear-age decisions have been made in secret: to develop the atomic bomb, to devastate Hiroshima and Nagasaki, and to develop the thermonuclear weapon. All were subservient to strategic pressures at the time.

Thus, Israel's actions are likely to be logical consequences of United States policy. We have sown for the harvest. Prior American administrations have promoted the impression of an imminent threat from a then-hypothetical Iraqi atomic weapon. The means of carrying out the raid were provided by the United States in the form of long-range aircraft. And the actual execution of the attack follows U.S. examples of placing immediate short-range national considerations above longer-range international factors.

If Israel and Iraq are to refrain from becoming nuclear-weapon states, the United States and other powers may have to agree to mutual restrictions on nuclear arsenals. American interests in nonproliferation can best be met by coming to grips with the limited options permitted by the nuclear-arms straightjacket.

[Dr. DeVolpi is author of a book on nuclear weapons (Proliferation, Plutonium and Policy: Institutional and Technological Impediments to Nuclear Weapons Propagation) and coauthor of a more recent book on government secrecy (Born SECRET: The H-bomb, the Progressive Case and National Security), both published by Pergamon Press.]